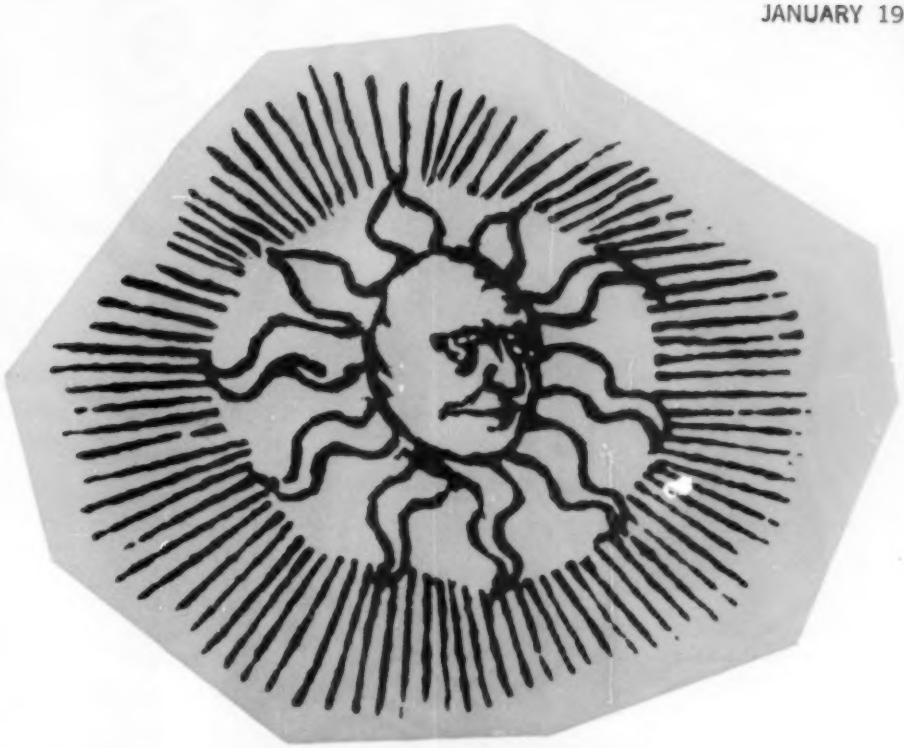
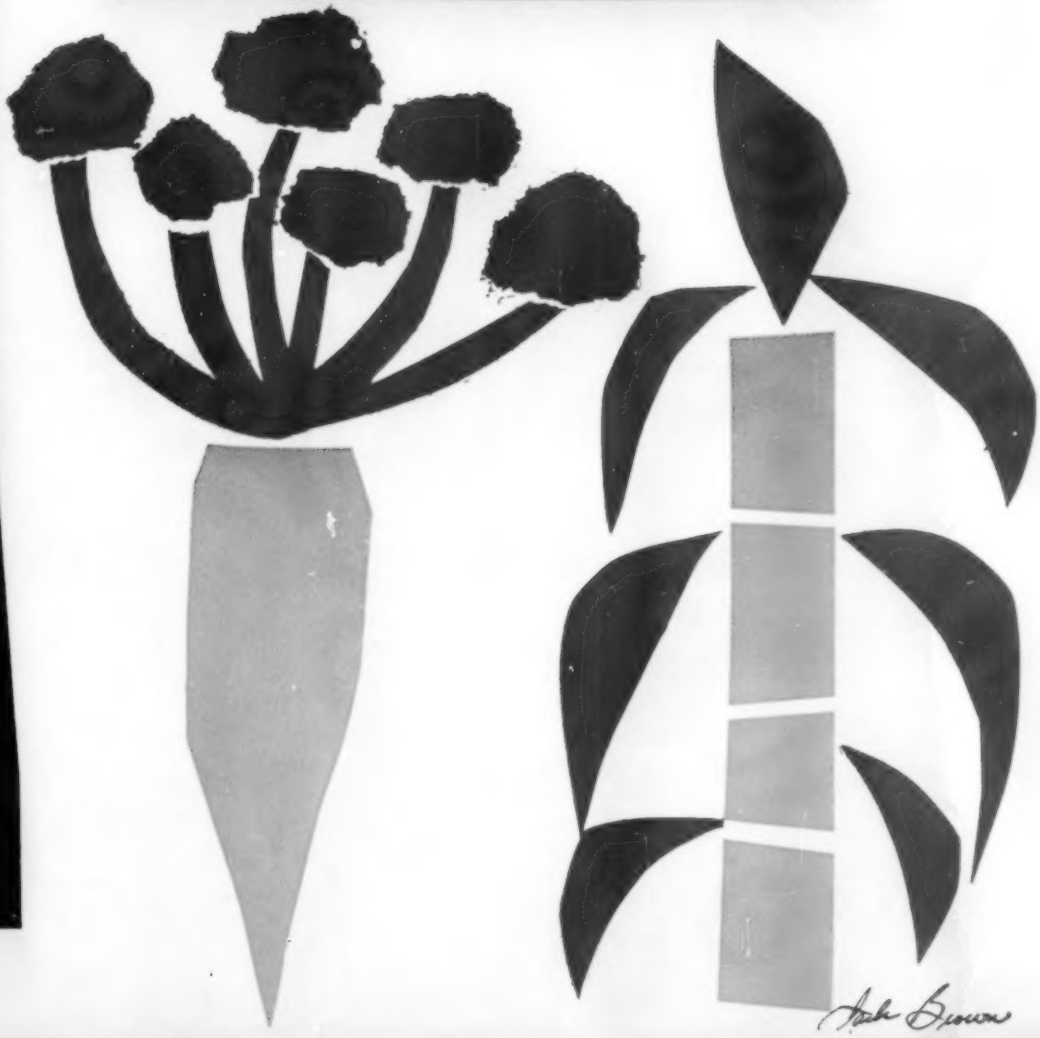
SUGAR Y AZUCAR

JANUARY 1960





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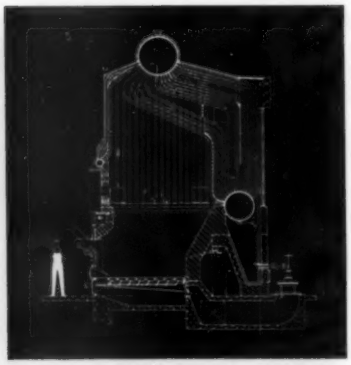
FOR THE SUGAR INDUSTRY

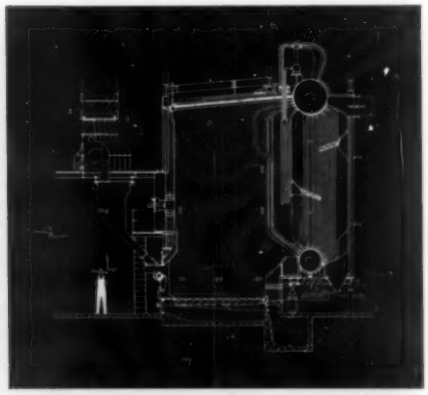
Combustion Engineering offers sugar mills a complete line of steam generating units equipped with stokers especially designed to burn bagasse better than can be done by any other method.

Such boilers, with a total capacity of more than 5,000,000 pounds of steam per hour, have been purchased for this service around the world.

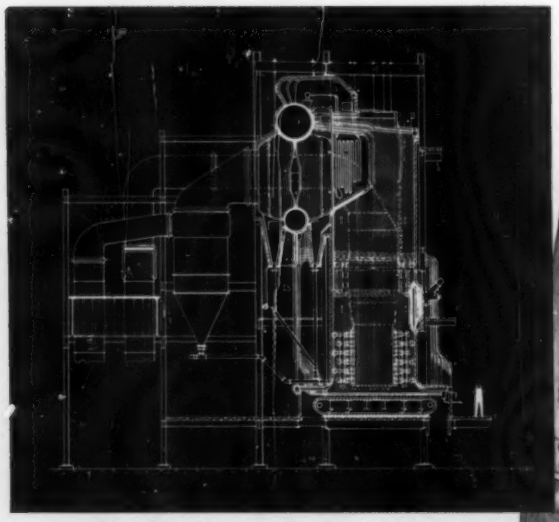
So—when you need equipment of this type buy from C-E, the company with extensive experience in your industry. Consult our representatives in your area, or our Export Department in New York.



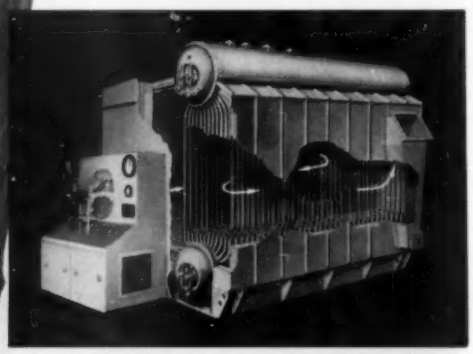
C-E Vertical-Unit Boiler, Type VU-10, equipped with C-E Bagasse Burning Stoker (Dump Grate Type). Units of this design are suitable for steam capacities up to about 45,000 pounds of steam per hour.



C-E Vertical Unit Boiler, Type VU-50, equipped with C-E Bagasse Burning Stoker (Dump Grate Type). This design is suitable for steam capacity requirements up to about 125,000 pounds of steam per hour.



C-E Vertical-Unit Boiler, Type VU-40, equipped with C-E High-Set Bagasse Stokers with continuous discharge traveling grate; tangential, auxiliary oil burners and tangential air admission are also employed. Especially suitable for steam requirements above 125,000 pounds of steam per hour.



C-E Package Boiler, Type VP. This oil or gas fired unit is especially suited for off-season and auxiliary steam needs. It is a complete, compact, shop-assembled boiler—simple and economical to install, operate and maintain.

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1959 has been a paradoxical year. With the public press reporting good business for the country as a whole, it has taken a discerning student to discover that the part of the economy relating to capital goods has only bettered to a modest degree. This fact, plus the low carryover of orders from 1958, caused us to have an unhappy year financially.

However, with the modest but positive increase in business in the U.S.A. and the substantial increase in orders for most of our overseas areas, we look forward with confidence to 1960. Improvement of efficiencies in all internal departments has also been positive and is continuing both as to costs and the time it takes to do things. This naturally will be beneficial to our customers.

SUGAR — Orders from new and expanding cane sugar factories in India for RapiDorr Clarifiers and Oliver-Campbell Filters contributed significantly to the business of our subsidiary in that country. And in other locations around the world—Mexico, British Honduras, Egypt, Mozambique and Swaziland, for example — these two units continued to be accepted as standard in the industry. In beet sugar, a British producer purchased First Carbonation Thickeners and Vacuum Filters for two new mills; and two Italian mills will use a total of four Vacuum Filters.

PETROLEUM—A variation of the initial application of the DorrClone Desanding System in fresh water treatment is the desanding of salt water used to recharge wells for secondary oil recovery at a West Coast location. Outside the U.S. our Japanese representative is fabricating filters for use in a catalytic cracking process and our British company will supply oil-water separators for both British and Brazilian refineries. Also of interest is equipment for a pilot plant to recover oil from tar sands.

PROJECT ENGINEERING — This phase of our operations was also particularly active in 1959 as design of phosphoric acid plants to be located in Idaho, Great Britain and Ireland and a phosphoric acid and triple superphosphate installation for Brazil was commenced. Also in the fertilizer field was a contract for process modification of a large British plant.

Late in the year, work was started on design of a large limestone crushing plant for which D-O will also purchase equipment and other materials. Our French subsidiary and domestic company working jointly virtually completed design of a large Yugoslavian copper concentrator. Two smaller but nonetheless significant projects—both including laboratory testing and feasibility studies — involved production of a limestone substitute to be used for self-fluxing sinter in blast furnace operation and the recovery of nickel from waste pickle liquors.

FLUOSOLIDS SYSTEMS — One of the new applications of the FluoSolids system this year has been preheating coarse shale in a special three-compartment reactor to produce light-weight aggregate. A second is drying iron ore before magnetic separation and concentration. Currently, the iron ore industry appears to have other drying applications ideally suited to fluidization. FluoSolids roasters are also under construction for a Canadian smelter where only partial sulfur removal is required.

Projects involving already proven applications have included in 1959 a pyrite roaster for a sulfuric acid plant on Formosa, three systems marketed by our Italian subsidiary for roasting pyrite to produce sulfur dioxide for pulp mill bisulfite cooking liquor and for a large zinc roasting installation in Yugoslavia, a large coal dryer for a Western producer, a copper-cobalt roaster in the Belgian Congo and detergent dryers in the United States.

METALLURGICAL — As in past years our work in this area has involved virtually all of the metallic minerals from gold to iron ore. The latter field as been among the most active with purchase of Sizers and Filters for Canadian washing plants, DorrClone classifiers for desliming prior to flotation, and Thickeners, Filters and Pumps for recovery of blast furnace flue dust.

PULP AND PAPER—A new tool for this industry is a novel pressure washing filter. Installation of the first U.S. manufactured unit is being made in a Southeastern pulp mill. Ideally suited to brownstock washing, the unit has a number of advantages from both the operating and installation standpoints.

Recausticizing systems including process flowsheet innovations, such as precoat operation of the Lime Mud Filter and application of a two-compartment White Liquor Clarifier with special feedwell, were purchased for new or expanding mills in Canada, India, the United States, Portugal, Japan, Yugoslavia, Scandinavia and the Philippines.

Around the world the American Saveall continued to be recognized as the major means of recovering paper machine fibers from white water and in the U.S. the largest bleach tower designed to date will soon go into operation. An unusual and interesting application of the Merco Centrifuge is recovery of by-product material used as a drill mud dispersant at a West Coast mill.

CHEMICAL — During the year applications of the Plastic Filter, first introduced in mid-'58, were broadened to include a variety of fine chemical and pharmaceutical separations and washing of acid leach liquors from metallurgical pulps. Also in the realm of new applications is dewatering of various plastics using the Mercone Screening Centrifuge.

As usual, our standard line of equipment played a major role in a great number of Italian chemical plant expansions and in large new or expanded facilities in France, Germany, Spain, Mexico and here at home.

FOOD PRODUCTS — Successful application in 1958 of the Mercone-Precoat Filter combination for apple juice processing has resulted in orders from two West Coast packers for similar stations.

In starch, several domestic and overseas producers will employ D-O Centrifugals of virtually every design for current modernization and process modification projects. Our Dutch subsidiary has put into operation three corn and potato starch washing and processing plants in Germany and Finland.

We have noticed with much concern the apparent growing tendency of many users of services and equipment to buy almost exclusively on price rather than on demonstrated product quality and the essential engineering services made available to them during planning and after installation. This is not a new subject — and one on which there has been much forceful editorial comment in the technical press.

This practice confronts the supplier with the practical short range choice of sacrificing product quality and needed engineering, losing the business, or taking it at a loss. For our own part, we do not propose to fall into this trap which, economic considerations aside, can only result in arresting technological advance and which could have a profound effect on the leadership of the free world in things technical.

J. D. Hitch, Jr.
Chairman of the Board

December 1, 1959

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SUGAR y AZUCAR

Volume 55 No. 1 January, 1960

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COVER *The ancient emblem of the sun, reproduced on our front cover by artist Jack Brown, symbolizes on this occasion the start of a new year and a new decade heralding a period of unusual expansion for the world sugar industry which has already reached extraordinary dimensions with an annual production of 55 million tons.*

PORTADA *El antiguo emblema del sol reproducido en la portada de este mes por Jack Brown simboliza en este caso el comienzo de un nuevo año y una nue a década que pregonan un período de extraordinaria expansión para la industria azucarera mundial, la que ya ha alcanzado enormes proporciones con una producción anual de 55 millones de toneladas.*

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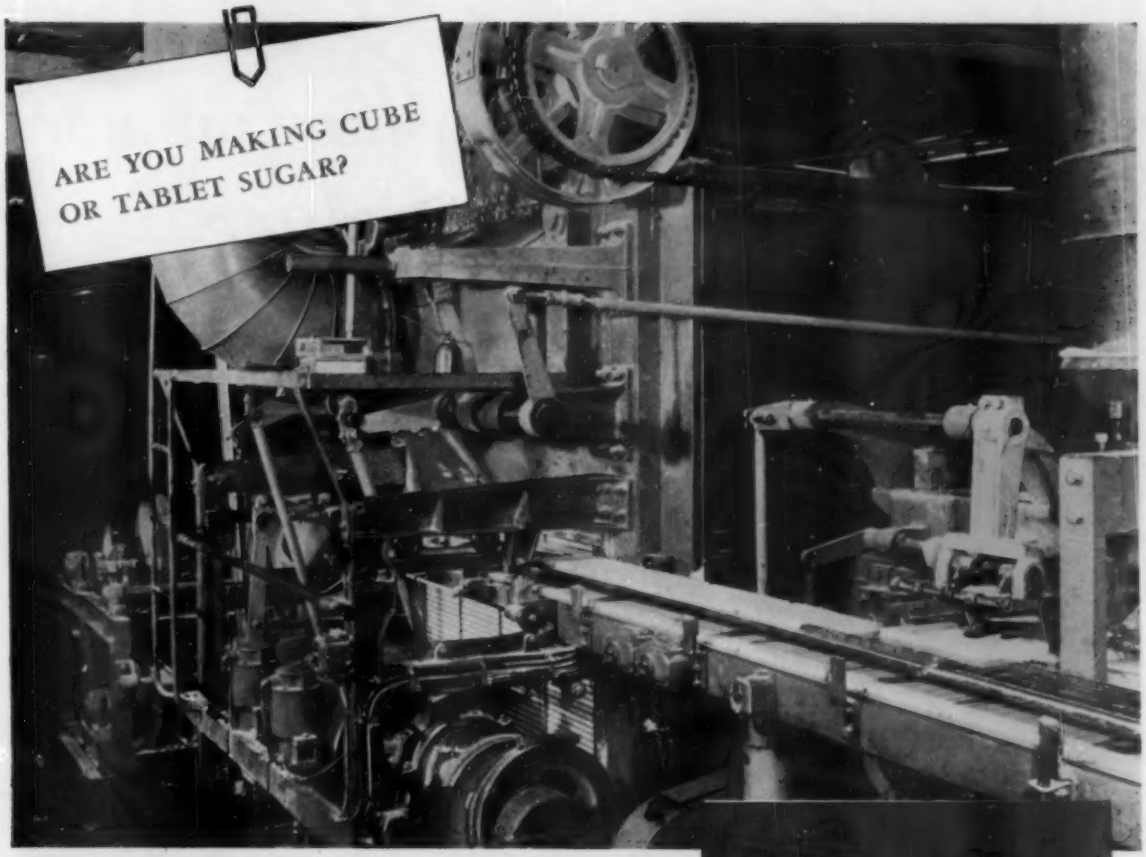

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An SF-HOEWELER unit consists of press, drier, cutting machine and conveyor belt. The entire process — pressing, drying and cutting — is completely automatic. The sugar is pressed into slabs or bars ready for cutting after drying.

With SF-HOEWELER units you can keep your production costs low and still give your customers the cube sugar they want.

5 *outstanding features*

- Good thermal efficiency
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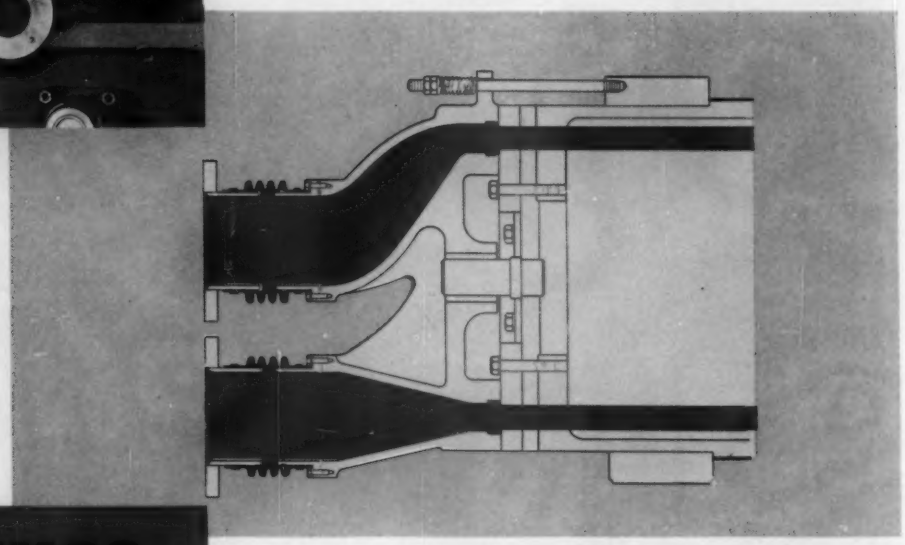

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Standard Equipment on Eimco Sugar Filters

Sugar men in every sugar producing area of the world have been able to increase the capacity of cane mud filtering stations with Eimco mud filters equipped with the new Hy-Flow valve.

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- Filtration efficiency is greatly improved.
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- Filter capacities are higher.
- Cake washing is more effective.

The Hy-Flow valve is available only on Eimco filters. It's standard equipment on Eimco cane mud vacuum drum filters and on new EimcoBelt continuous belt drum filters, now establishing spectacular records in sugar filtration.

Contact the Eimco regional representative in your area for more facts about Eimco Hy-Flow valve and Eimco filters for sugar processing.

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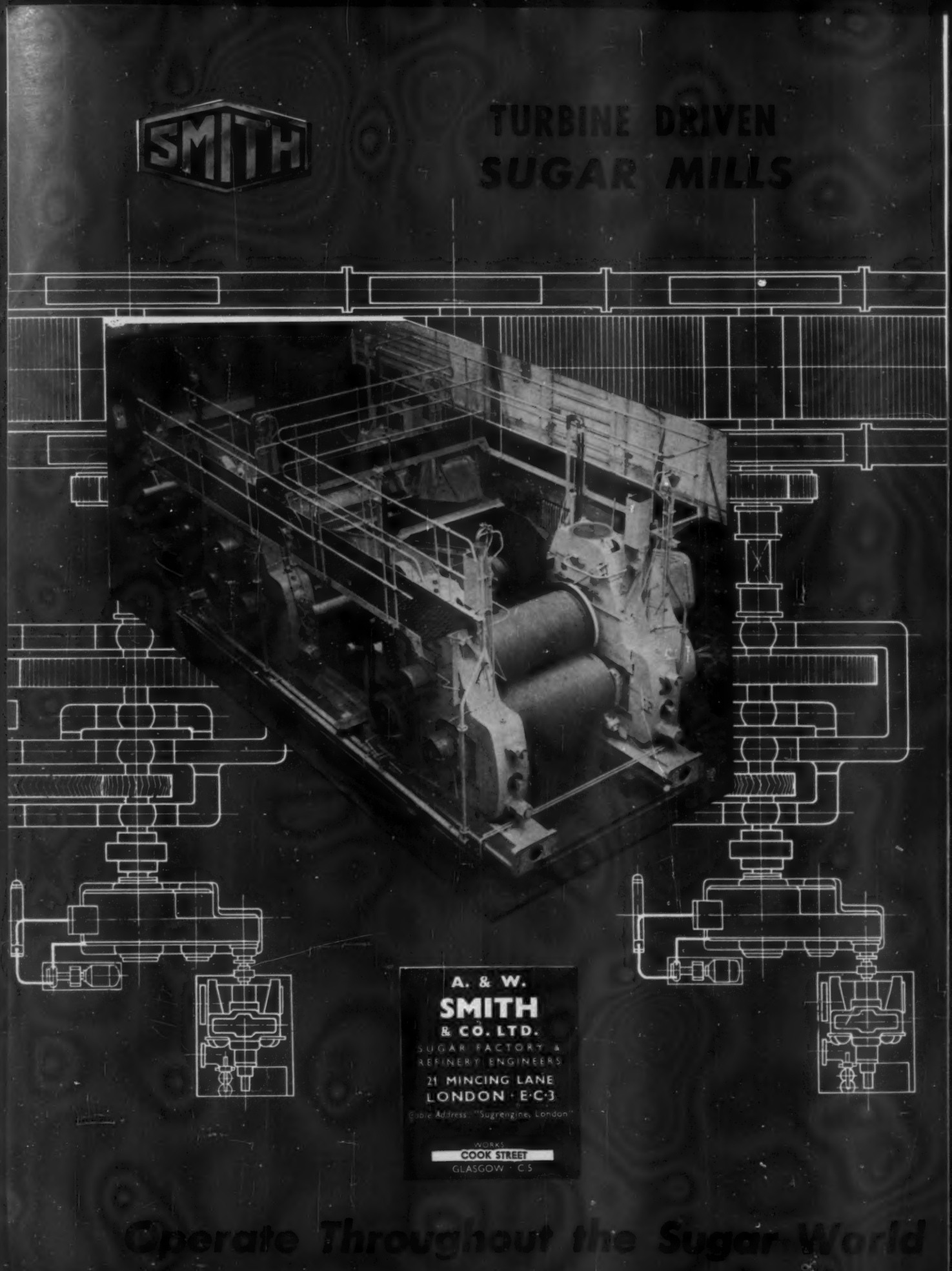
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These two conversions are for a 29" x 54" 13-roll tandem, and are part of a modernization program to increase capacity and efficiency. This program included the installation of steam turbines and the modernization of the driven cast iron [illegible] resulted in doubling the grinding capacity.

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3. Top scraper rises with the top roll.
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5. Narrow turnplates requiring less power.
6. Improved design long ram hydraulic top caps.

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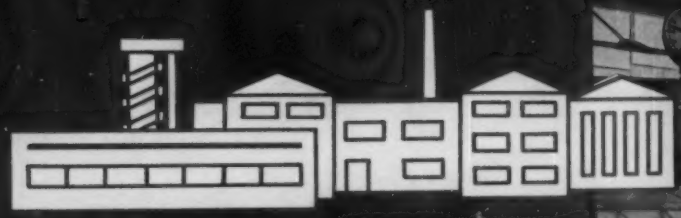

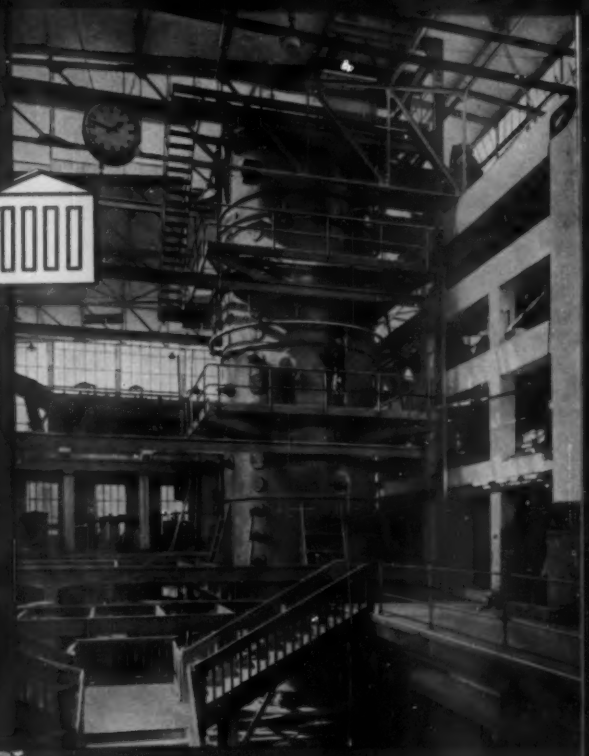

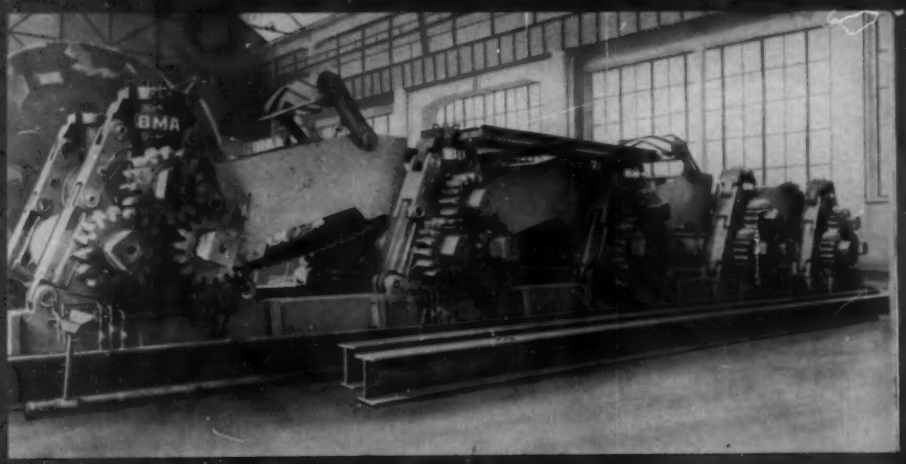

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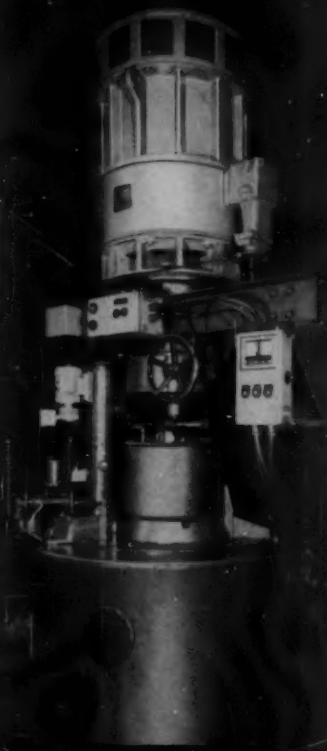
Please send us your inquiries, we shall be glad to advise you free of charge.



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Link frames—available in malleable iron, Promal, bronze or stainless steel—can be furnished with pins and bushings of either carbon steel, bronze or stainless steel.

For complete information on Link-Belt chains and sprockets, contact your Link-Belt representative. Or write direct for Book 2640 containing full information on Link-Belt's complete line of sugar-handling equipment. 15051-R

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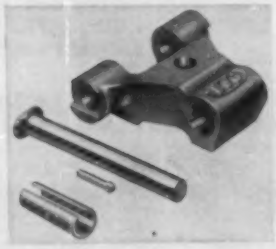

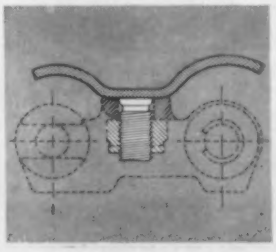

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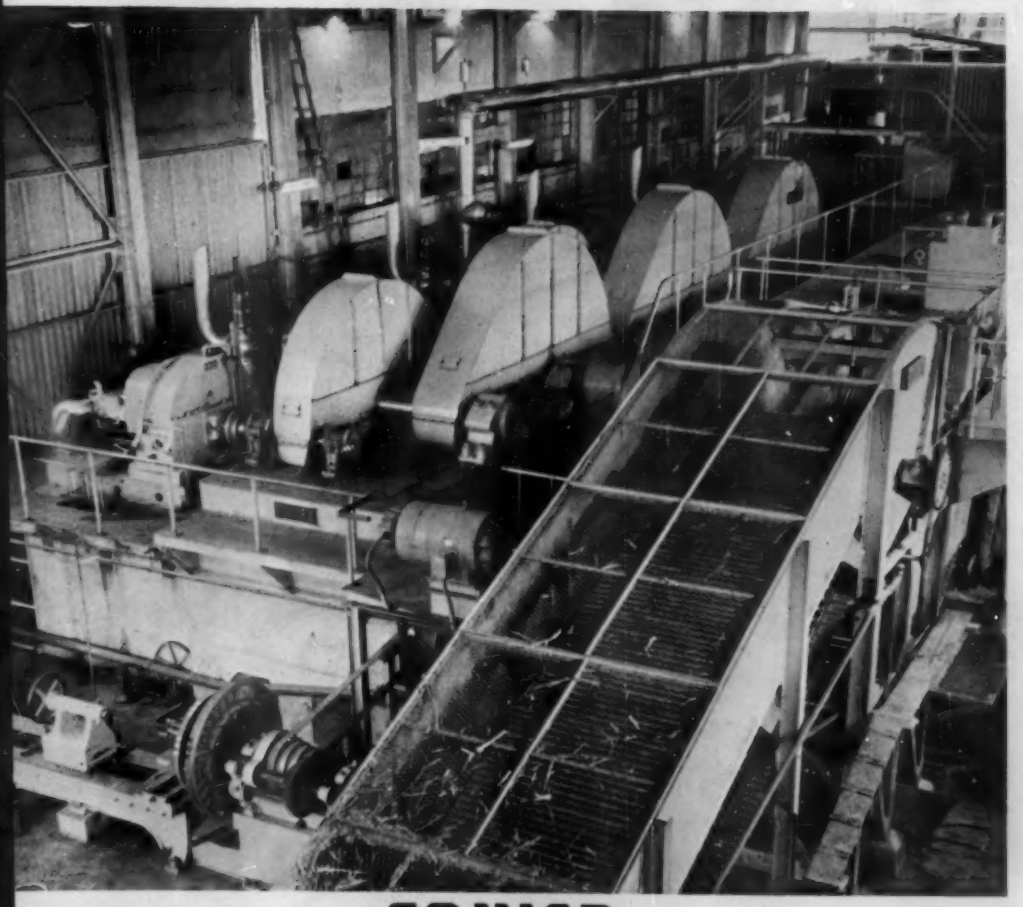

***From an Editorial in SUGAR JOURNAL**

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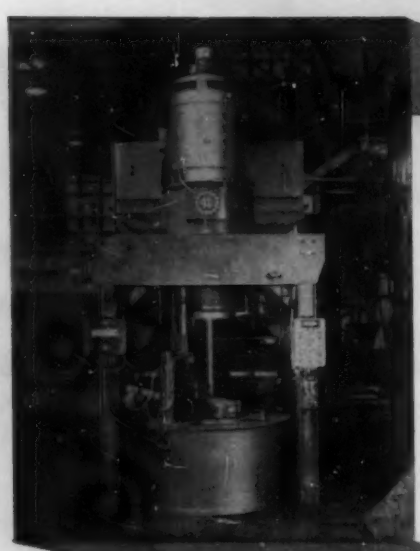

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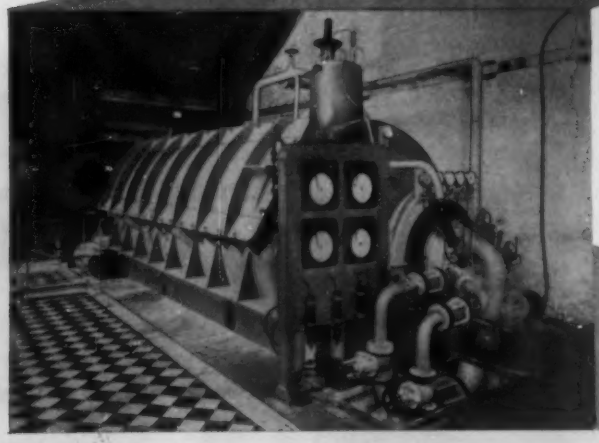

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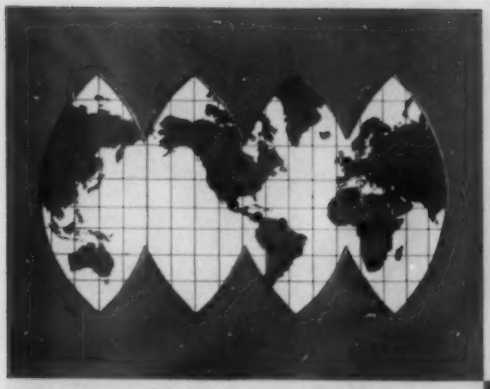

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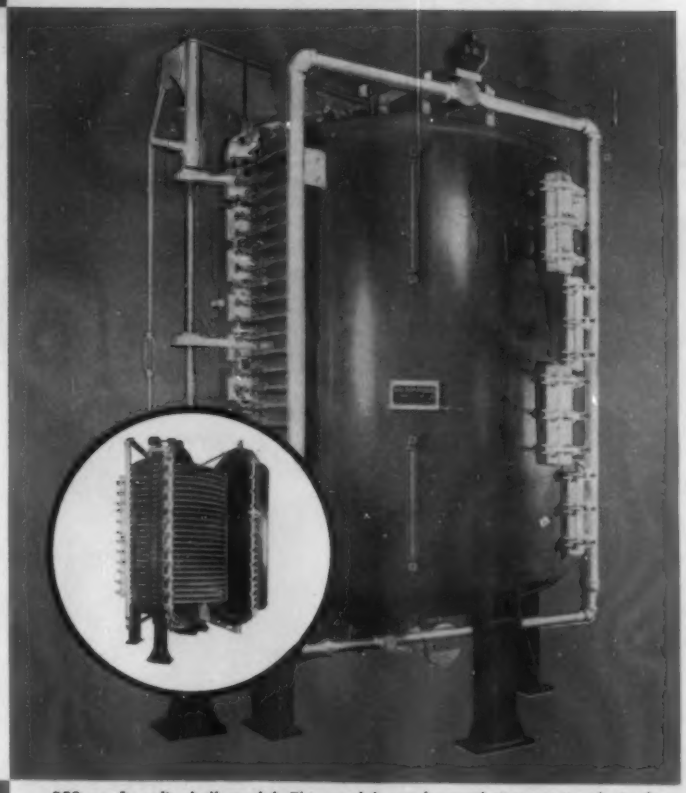

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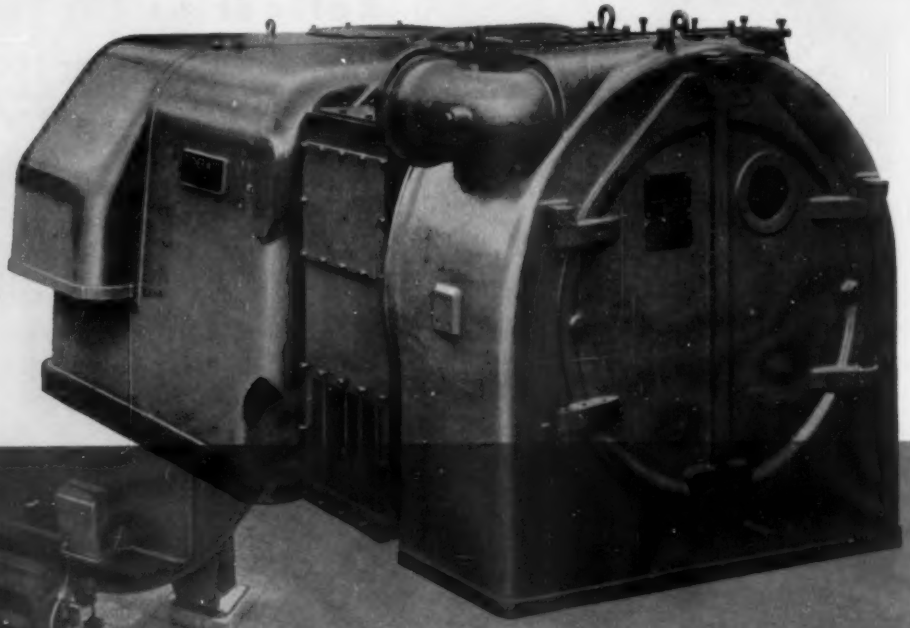

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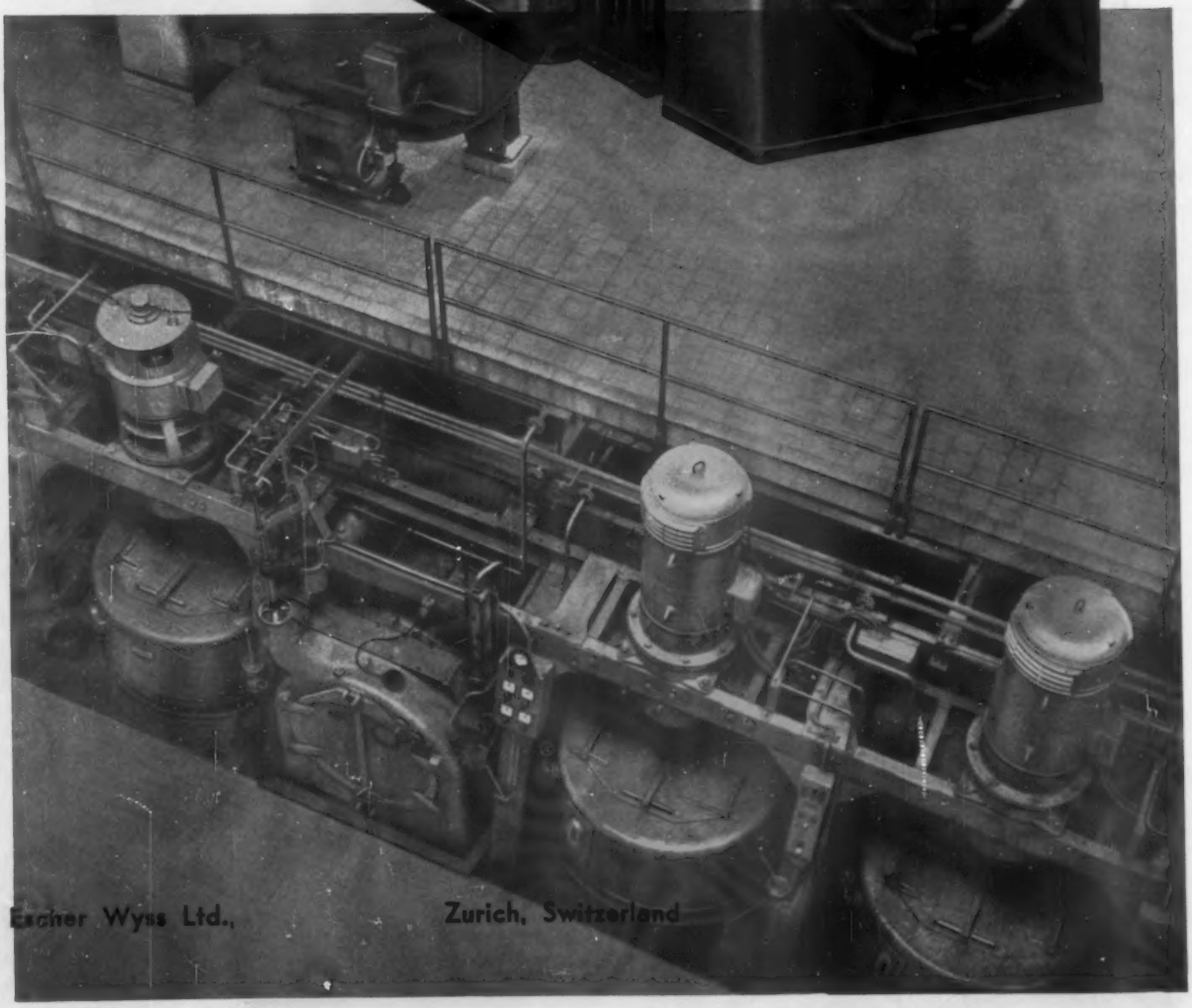

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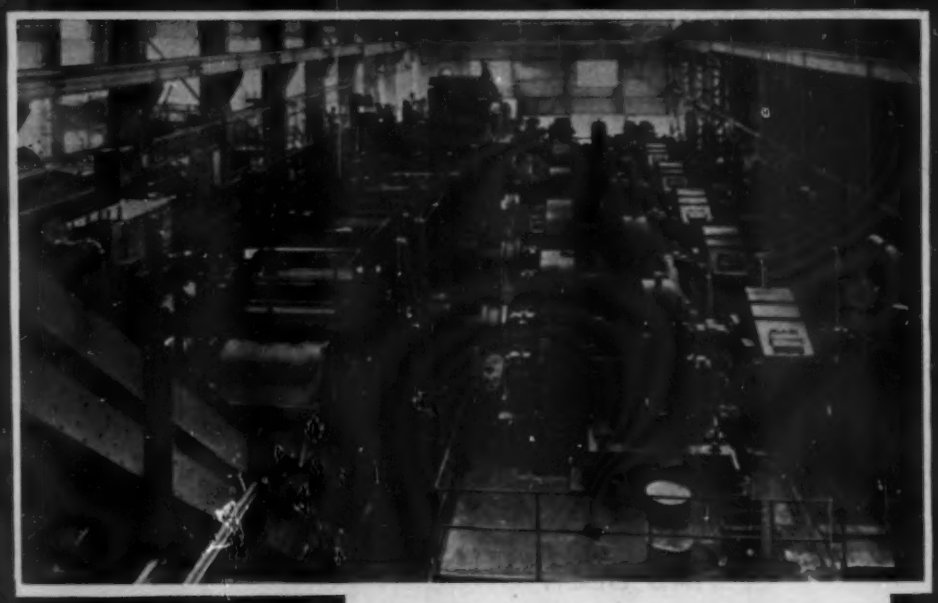

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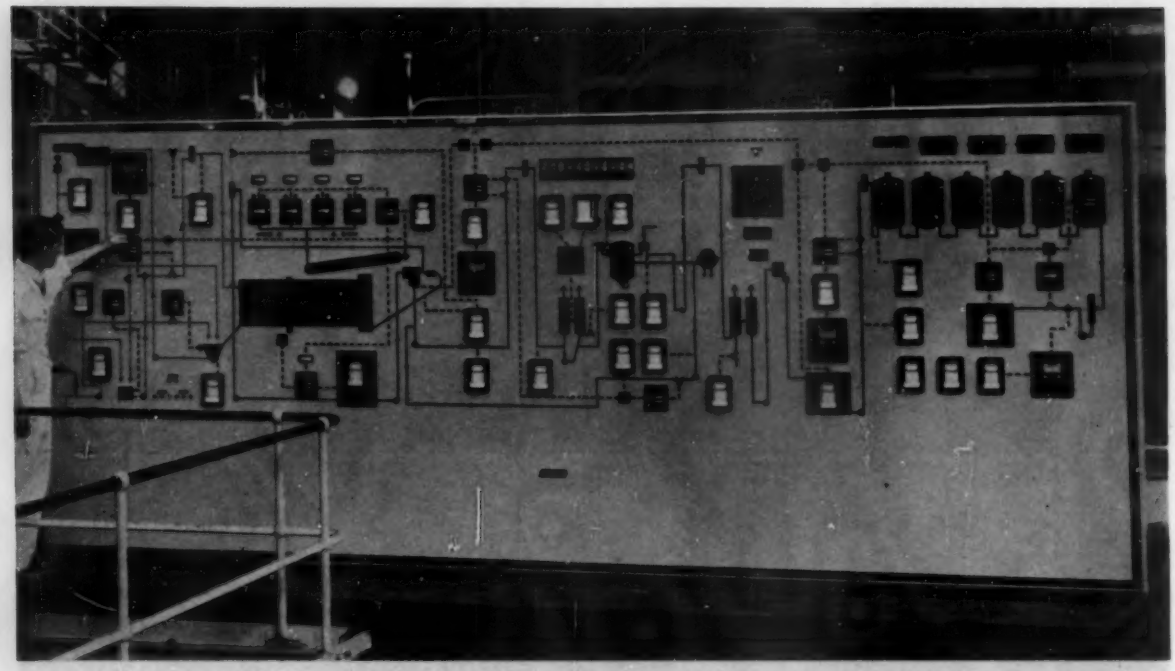

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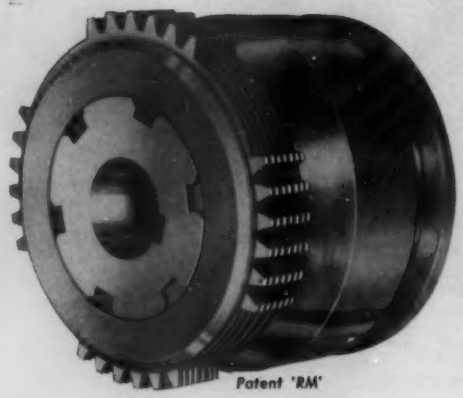

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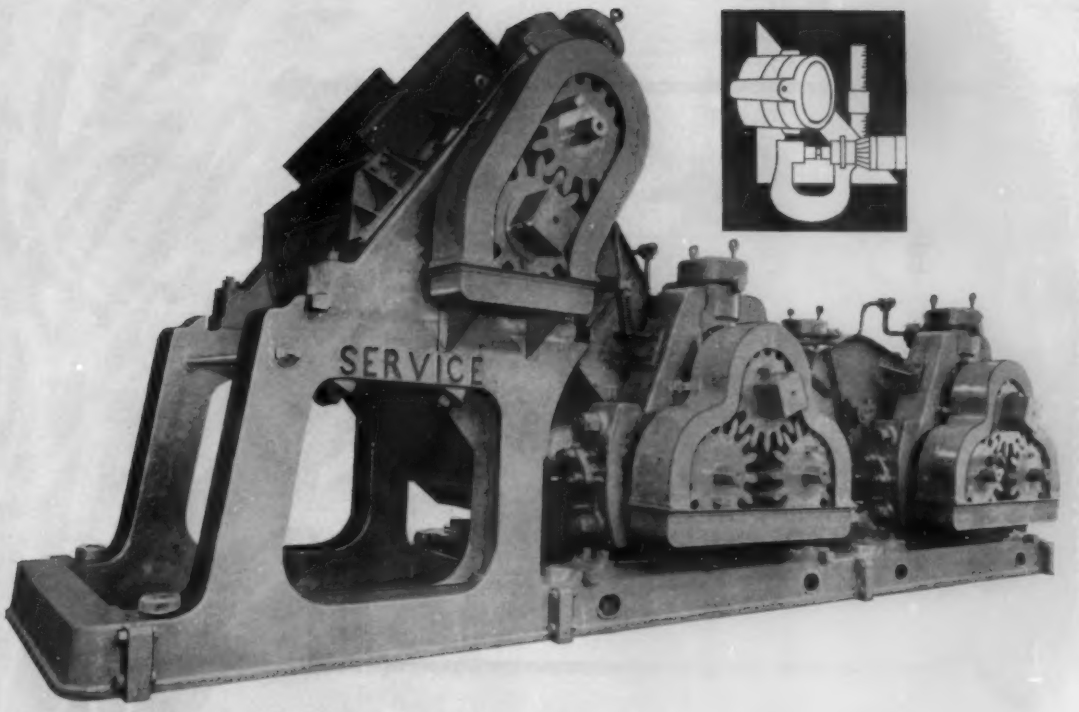

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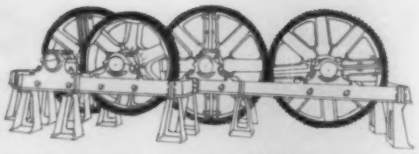

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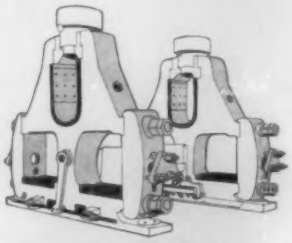

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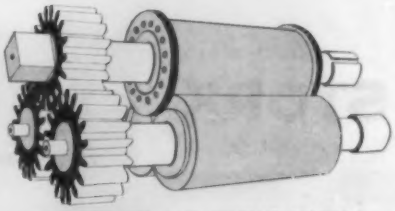

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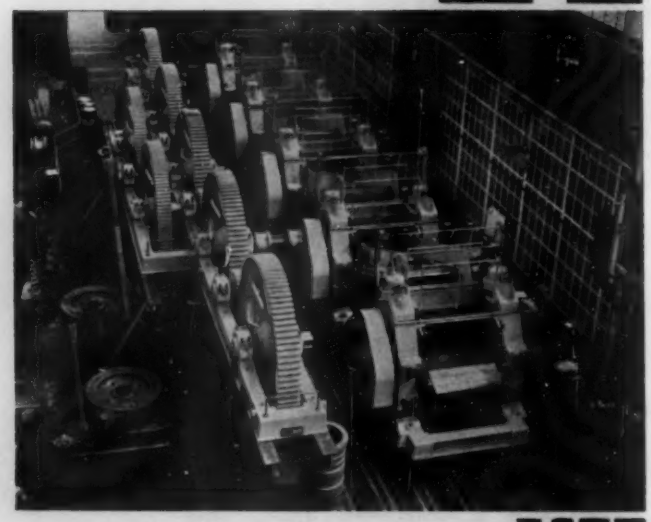

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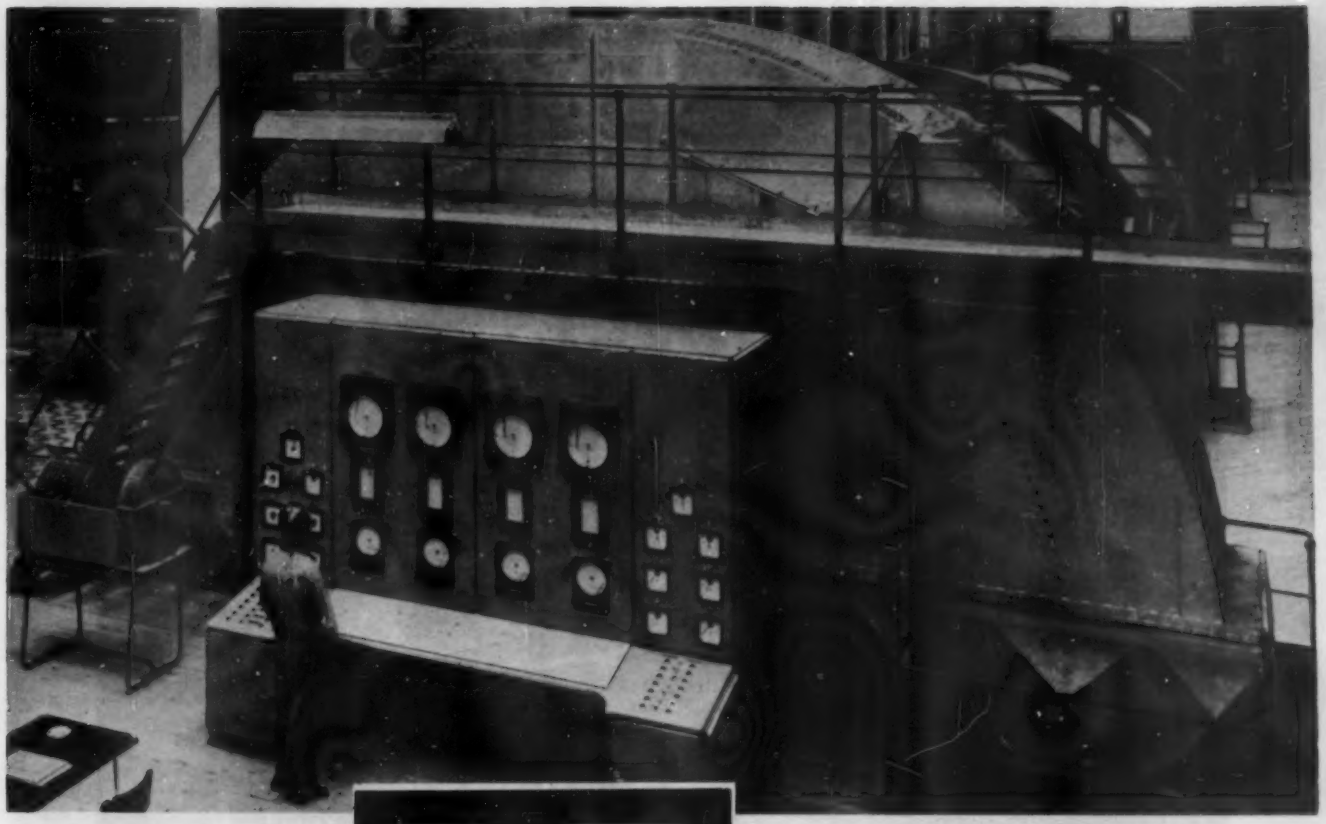

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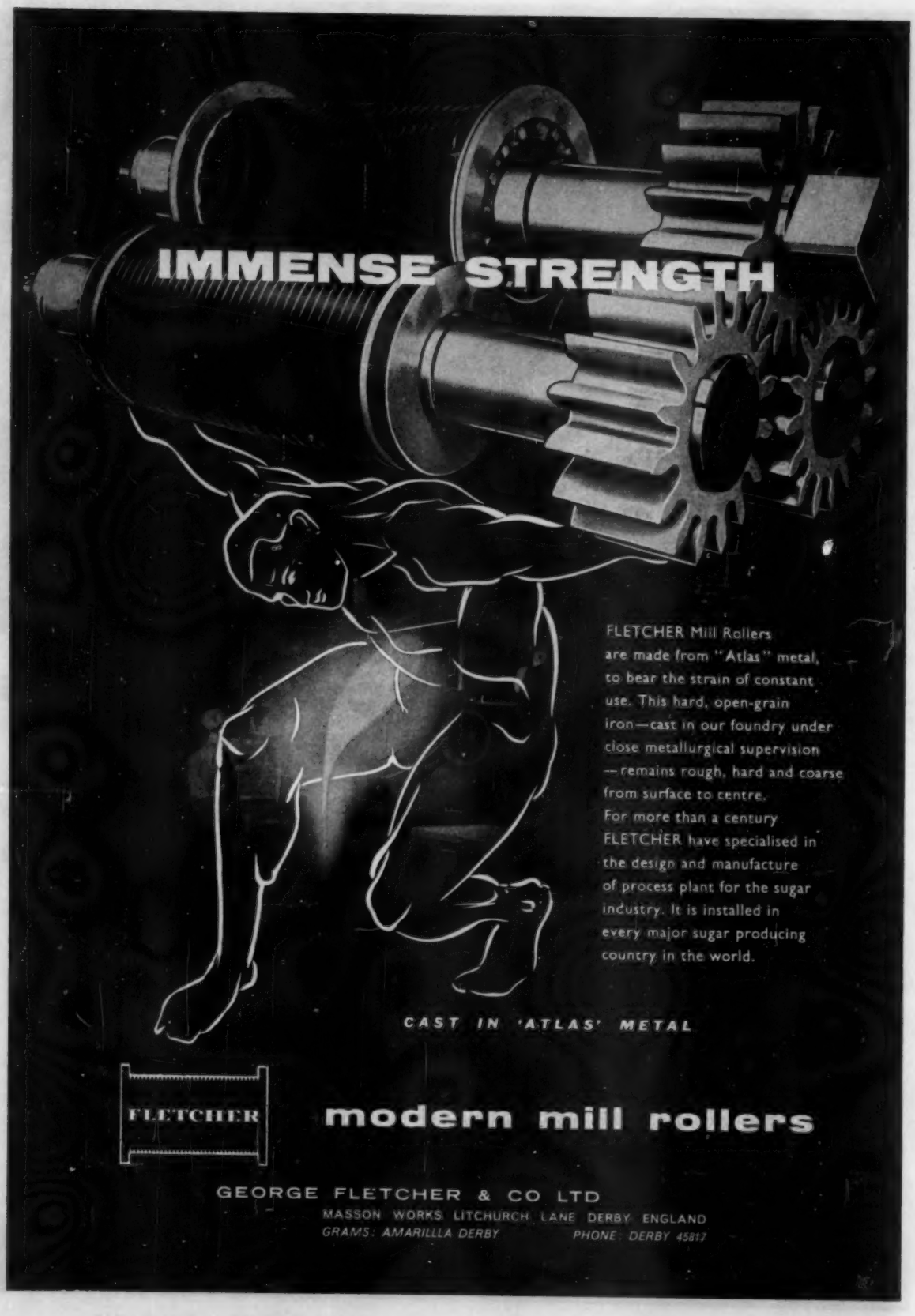
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SUGAR

JANUARY, 1960

Sugar Outlook for 1960

By Alexander C. Muir,

Manager Research & Statistics Dept. B. W. Dyer & Company

While world sugar prices early in 1960 may continue to sell below the 3.15¢ minimum mentioned in the International Sugar Agreement, the supply/demand outlook suggests that some strengthening should take place. Of course, if Cuban sugar were seriously imperiled by renewed fighting, prices could move even higher.

In connection with potential Cuban production, the U.S. Department of Agriculture states ". . . The most uncertain forecast for North America is Cuba (which was placed at 6 million short tons versus about 6.6 million tons in 1959), where sugar output in the 1959/60 campaign may be determined more by political and economic events than by weather conditions or the amount of available cane. . . ."

While it is too early to make exact forecasts of the final 1960 outturn, it is interesting to note that early in November a director of the Cuban Agrarian Reform Institute was quoted in Rome as saying that the Cuban government would not permit sugar production to be diminished.

At the 1960 U.S. quota hearings held in Washington on November 24th, Dr. Meyer of the Cuban Sugar Stabilization Institute estimated that the Cuban carryover at the end of 1959 would be about 1.3 million short tons, and was confident its 1960 production would cover U.S. and world requirements. Laurence A. Crosby, Chairman of the U.S. Cuban Sugar Council, stated that ". . . there might be some talk of crop restriction because of market conditions, but other strong reasons would favor an unrestricted crop".

In retrospect, after Cuban hostilities ended at the close of 1958, world sugar prices declined rather persistently from 3.67¢ per pound to an eighteen year low of 2.55¢ per pound in July. Despite the reduction of International Sugar Agreement export quotas to minimum levels on June 17th, the effect of the bumper 1958 European beet crop curtailed buying. However, early in August, Russia rather unexpectedly bought 170,000 tons of Cuban sugar, and world prices advanced. The serious drought in 1959 played havoc with European beet growth, and caused a further rise in world spot prices to 3.17¢ per pound in mid-September.

Although Russia bought an additional 330,000 tons of Cuban sugar, prices declined in October as Cuba tried to market its surplus sugar. While some slight firming started in November, the world spot price averaged less than 3¢ per pound in 1959, compared with about 3.50¢ in 1958.

World production in 1959/60 is estimated by F. O. Licht at about 54.7 million short tons, raw value, against 56.2 million tons last season, or a decrease of about 1.5 million tons. Western European production is estimated at about 8.5 million short tons, raw value, compared with 9.6 million tons in 1958/59. Production in Eastern Europe was placed at about 10.2 million tons versus almost 11 million tons last season.

The U. S. Department of Agriculture estimates world production in 1959/60 at 54.5 million short tons or about 1.1 million tons below that of last season's record total. The most significant declines were indicated for Russia, France, both East and West Germany, as well as the rather questionable Cuban estimate. Australia and Brazil also are expected to have substantial decreases, but these reflect curbs on production in view of heavy stocks and restricted exports. U. S. and Mexican production is expected to be noticeably higher.

World sugar consumption in recent years has increased over 5%, based on F. O. Licht's figures. Thus, if 1960 consumption again shows this normal increase, it should slightly exceed estimated production. However, according to F. O. Licht, world stocks increased over two million tons during the 1958/59 season to about 13.5 million short tons. Consequently, there are ample stocks to take care of any normal increase in consumption.

The International Sugar Council met in Tangier, Morocco, the latter part of November and fixed provisional 1960 export quotas, at 87.5% of basic export tonnages. This reduced the total export quotas by about 900,000 short tons, and brought them more closely in line with estimated free market requirements of about 6.3 million short tons, raw value. In 1959, free market requirements, which are only a small part of total world demand, were estimated at about six million tons.

In accordance with a resolution passed in August, the council agreed that Cuba and the Dominican Republic should be entitled to carry forward into 1960 up to about 190,000 short tons and 24,000 tons, respectively, of their 1959 quotas. These amounts would be added to their 1960 quotas.

In review of the U.S. picture, domestic raw sugar prices declined sharply during the first few months of 1959 as the problem of financing large Cuban inventories and the desire to expedite the movement of sugar out of that country exerted an abnormal pressure on the market. The accompanying inventory reduction in the U.S. apparently became too drastic, and a reappraisal of the potential supply/demand situation caused raw sugar prices to rise from the April low of $5.75 per 100 pounds, duty paid basis.

Refined sugar distribution then began to run at record levels because of abnormally hot weather, the waterfront strike threat, and in an effort to beat the announced increases in refined sugar prices, which became effective in the Northeast, on October 1st. Prior to that, Northeastern refined prices had been reduced from $9.35 to $9.20, effective February 16th, and to $9.05, effective March 23rd. Prices in that area were then advanced to $9.35, effective May 18th. In February, delivered prices on liquid and bulk dry sugar were introduced for different zones in certain Northeastern states.

Domestic raw sugar prices reached a peak of $6.57, duty paid, in mid-October, but declined in November as a result of over-quota offerings.

In 1959, the initial U.S. sugar quota was set at 9,200,000 tons, but was raised 100,000 tons each on September 3rd and on October 20th. Puerto Rico had an estimated deficit of 222,623 tons, Hawaii 162,492 tons and

the Virgin Isles 3,856 tons, which were reallocated. The beet area got 224,185 tons of these reallotments; mainland cane 68,984; and Cuba 95,802. In addition to this, on October 1st, the entry and refining in bond of overquota sugar was permitted ". . . to make needed supplies available to East Coast refiners".

At the November quota hearings, Joseph M. Creed, spokesman for the Industrial Users of Sugar, recommended an initial 1960 quota of 9,800,000 short tons, raw value. Dr. Phillip E. Jones, representing the major domestic sugar producing groups, estimated potential 1960 U.S. distribution at about 9,414,000 tons, including a 50,000 ton "refining loss", but said that the total could be reduced by 215,000 tons by the absorption of abnormally high cane refiners' stocks and "constructive" deliveries (those made to fill quotas at the end of the year, but not actually physically delivered until the following year). Although he felt that Puerto Rico and Hawaii again will be unable to fill their 1960 quotas, they will have higher production than in 1959.

Refiners' inventories at the end of 1959 probably were above the relatively high figure of 597,000 tons reported at the close of 1958. While some reduction undoubtedly took place in December following reports that longshoremen intended to sign a three year agreement with New York shippers, concern over Cuban political developments probably was an offsetting factor.

"Invisible" inventories (those held by industrial sugar users, chain stores, wholesalers, etc.) at the end of 1959 probably were slightly lower than at the end of 1958. U.S. refined sugar distribution during 1959 probably closely approached estimated consumption, which was about 9,150,000 short tons, raw value. "Constructive" deliveries made at the end of 1958 were estimated to have been about 90,000 tons, and a somewhat similar amount probably was charged to the 1959 quota. Although "invisibles" at the end of 1959 may have been slightly below those of the previous year, they probably were above normal. Unless Cuban developments stimulate demand, the absorption of excess "invisibles" should restrict reported deliveries in the first part of 1960.

Ample supplies are anticipated for normal U.S. needs in 1960. U.S. beet sugar production probably will be about 2.3 million short tons, raw value, versus 2.2 million tons in 1958. Mainland cane sugar, despite the Louisiana freezes, probably will total close to 600,000 tons, against 579,000 in 1958. As mentioned before, although Puerto Rico and Hawaii are again expected to have deficits, they probably will be smaller than in 1959. Philippine production should approximate last season's record of over 1.5 million.

In 1959, spot raw sugar prices averaged about $6.25 per 100 pounds, duty paid basis. In 1958, they averaged $6.27, and in 1957, $6.24. While prices fluctuated significantly during each of these years, the similarity of the annual averages suggests that they resulted from quota policy rather than from chance. Inasmuch as the Consumer Price Index, which is mentioned as a reference "yardstick" in the Sugar Act, probably will rise somewhat in 1960, it is unlikely that the Secretary of Agriculture's price objective will be lower than in 1959. While difficulties in financing Cuban sugar in 1960 may expedite shipments, the concern over possible developments on that unhappy island may check the extent of decline in prices, which normally take place in the early part of the year.

Congress is scheduled to consider an extension of the present Sugar Act which expires December 31, 1960. Several Senators and Congressmen have suggested that Cuba's quota be cut. If Cuba's sugar quota were reduced under a new Sugar Act, the U.S. could replace Cuban sugar from many sources. For perspective, Cuba in 1959 produced 6.6 million short tons of sugar, raw value; Cuba's 1959 U.S. sugar quota was over 3.2 million tons.

Inasmuch as the U.S. raw sugar price generally is higher (in the latter part of 1959 about $2.50 per 100 lbs.) than the world raw sugar price, sellers in the countries listed below probably would eagerly divert all their surplus sugar to the U.S. if the normal premium continued and U.S. quotas were changed to permit such imports. Of course, if these countries were given sufficient notice, production could be increased substantially in future years.

At the November quota hearings, spokesmen for the Philippines and the Dominican Republic asked for a larger share of the U.S. quota, and pointed out that they could supply an additional 375,000 tons and 500,000 tons, respectively. Moreover, based on 1960 estimates of production and local demand, the following selected countries probably could furnish the U.S. with additional sugar in 1961 as follows (in short tons, raw value): Taiwan 800,000; Brazil 500,000; Peru 400,000; and Mexico 300,000. This total of almost three million tons is besides the 1959 U.S. quota of 1,227,000 tons from this group.

Another 100,000 tons probably could be obtained from other Central American, South American and Caribbean countries. Furthermore, U.S. beet growers could probably provide a substantial amount of additional sugar if given sufficient opportunity.

If all Cuban sugar were displaced in the U.S. market, Cuba would be forced to sell her sugar in the world market at a loss currently estimated at about $150,000,000, the premium Cuba receives when selling in the quota-protected U.S. market. This financial loss alone would probably bankrupt Cuba. Moreover, the disruption of normal channels of distribution for disposing of the increased Cuban supplies, which would have to be sold in the world market, would probably cause further losses. Only at price concessions can new sugar markets generally be captured.

The Board of Managers of the New York Coffee & Sugar Exchange, Inc. on December 11th, approved a new #7 contract which calls for the delivery of U. S. quota raw sugar in bulk rather than in bags. Members are scheduled to vote on this proposal on January 6th, and trading presumably will start shortly after ratification with the March contract likely to be the first month of delivery.

Precedents of transferring activity from an obsolete to a new contract indicate that there will be a gradual drying up of trading in the #6 contract because of the #7 contract more closely following commercial raw sugar practices. Consequently, there should be a gradual transfer of positions from the #6 to #7 contracts.

■

New Filter Illustrated At Zerban Lunch

Sugarmen attending the monthly luncheon of the Zerban Association were shown a film depicting the development and application in the beet sugar industry of a revolutionary new type of vacuum filter developed by Eimco Corporation. A talk describing the principles on which the new filter is based was delivered by Robert Van Note of Eimco. The film in color and with sound shows the filter in operation at a beet sugar factory. The filter medium runs over a rotary vacuum filter, is drawn off the rotating drum, passed over a smaller auxiliary drum where the medium is thoroughly washed on each revolution and returned to the drum. It is said to eliminate the need for frequent replacement of the filter medium and to produce a first carbonation juice of exceptional clarity. Plant scale experiments are being conducted in cane sugar factories.

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Glassine Linings For Soft Sugars

A new package, designed to retain moisture in soft sugars has been developed by California and Hawaiian Sugar Refining Corporation. Two sheets of amber glassine are laminated with a sheet of micro-crystalline wax as the inner ply. The new material is used with 25 and 100 lb. bags for dark brown, light brown and raw type sugars. Keeping qualities are much improved according to an announcement by C. & H.

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Arthur Kirstein

Arthur Kirstein, Jr. retired president of West Indies Sugar Corp. passed away on December 5th, 1959. He was connected with the sugar business for 45 years, serving in various capacities in Cuba and Santo Domingo. In 1947 Mr. Kirstein became president of West Indies Sugar Corp.

Various Alternatives

Fate of the Sugar Act in 1960

By William H. Doherty

William H. Doherty, well-known expert on legislative problems of the sugar industry, formerly attached to the Washington office of the Hawaiian Sugar Planters Association and now acting as an independent attorney, has made extensive investigation of the possible alternatives now facing the Sugar Act of 1948 (As Amended) on behalf of SUGAR Y AZÚCAR. The Act expires in 1960 and Congressional action to extend it is indicated before the adjournment of this session. Such action could profoundly affect the future of many sugar areas supplying the U. S. market. It is felt that the analysis presented in the accompanying article is of extreme importance.—Editor.

THE United States Sugar Act will definitely be extended by Congress in 1960. Duration of the renewed statute will be at least a year.

That is the conclusion of this writer after a survey among all elements of the industry, foreign and domestic, and interviews with legislative leaders of both parties as they gathered in Washington for the Second Session of the Eighty-Sixth Congress.

Tough legislative battling seems certain over a wide assortment of proposed amendments aimed mainly at increasing quotas for various suppliers at the expense of Cuba. Whether any quota changes will be made is conjectural, as there is a strong body of opinion opposing any shifts at this time.

The whole picture could be changed under the impact of world events. Barring anything now forseeable, however, the Act will not be allowed to lapse when it expires at the end of 1960. Leading Senators and Representatives say this would be "unthinkable." The White House and administrative departments are strongly supporting extension.

Desires and demands of almost every sugar-supplying area for a larger share of the U.S. market rose to a high pitch with the coming of the Fidel Castro government in Cuba. Disappointed last year by Congress' refusal to take any action, these applicants are redoubling their efforts now. They feel simple justice demands clipping the huge Cuban quota. Public outrage against Castro's actions, plus the admittedly sound claims of at least some of the producers, is bound to bring increasingly strong efforts at substantial relief for the quota-hungry.

The would-be expansionists have also gained strong aid from sources which never before figured in sugar legislation. American investors in oil, cattle, banking and other enterprises in Cuba are angered at the confiscations under Castro. They feel reprisals are in order.

Drastic action threatened by the Cuban prime minister and the promised expropriation of sugar lands, would indicate that sharp cuts in the Cuban quota for the benefit of domestic producers and some foreign sugar areas are definitely at hand. These may come, but there is no certainty about it.

This writer noted that there is a strong feeling in some State and Agriculture Department circles that the quota provisions of the Sugar Act should not be tampered with now. This view has some support in important legislative circles as well.

Probably the dominant law-making figure in sugar legislation is Representative Harold D. Cooley of North Carolina, Chairman of the Committee on Agriculture of the House of Representatives which initiates sugar legislation. A veteran legislator of unquestioned ability, Mr. Cooley told me there was "no doubt" sugar legislation will be enacted this session, then, in language which merits very careful attention, he said:

"While at the moment I have my own very definite views concerning the problems involved, I shall try to keep my mind open and I will, of course, receive and consider the views of all interested parties. I shall approach the performance of my duties with complete impartiality.

"Notwithstanding the constantly deteriorating situation in Cuba I still do not believe that we should be punitive in dealing with the welfare of the people of Cuba. Quotas provided in the law under which the sugar program is now operating seem to be fair and equitable and to date no great cogent and convincing arguments have been advanced to justify or warrant a review of the quota provisions of existing law.

"In writing new legislation dealing with sugar it occurs to me that we should be careful not to make a martyr of the Prime Minister of Cuba and we should likewise be careful not to make him a hero. We should study the situation objectively and realistically. The Act does not expire until the end of next year. A one-year extension would permit the program to continue until the end of 1961. At that time we could take 'another look' and modify or amend the law as it then appears either necessary or desirable to do so."

A leading Senate sugar figure is Senator Allen Ellender of Louisiana, chairman of the Senate Committee on Agriculture. In a recent speech he said "it may well be that 1960 will see some changes in quotas" in light of the developments in Cuba, but he added:

"I would be willing to abide by the present quota system in order to avoid further friction with our close neighbors to the South, if only they could be persuaded to establish a sane and democratic form of government."

Republican beet bloc leader, Senator Wallace F. Bennett of Utah, said it was obvious that the coming session would see extension in some form of this legislation "which has proved for a quarter century to be so beneficial to both consumers and producers."

Last year Senator Bennett introduced a Senate bill, sponsored by 47 other Senators, providing an indefinite extension of the Sugar Act. He now tells me:

"By the beginning of the session, we expect there will be considerable clarification as to the exact form which, in the national interest, the extension should take.

"The term of the Act is among the factors we must consider. In spite of the uncertainties in the Caribbean, there are many reasons for renewing the Sugar Act for a number of years. One of the important benefits of the Sugar Act has been the stability it has brought to sugar marketing, from a consumer as well as a producer point of view. This stability naturally is enhanced by a long-term Act—passed as early in the session as practicable.

"There no doubt will be proposals for changes in the law. The appropriate committees and the entire Congress will wish to study such proposals in light of existing circumstances."

Both domestic and foreign sugar growers are keenly aware that the actions of Prime Minister Castro in Cuba, whether or not dictated by the Kremlin, are not of themselves sufficient to change America's long time reliance on Cuba as its principal supplier of sugar. They feel however that now is the ideal time to press their claims for substantially larger quotas. The domestic

industry must be allowed to expand in justice to our own people, domestic producers argue. Foreign suppliers who, with the exception of the Philippines, have only a tiny share of the American market, present plausible arguments for increases.

Thus, plans for amendments are being carefully laid. Domestic producers, dominated by the beet growers, the largest segment, are trying to present a united front. They know that Congress, in a Presidential election year and with early adjournment for the political conventions, will be in no mood to referee any quarrels they may have among themselves.

As the New Year neared, their ideas were just about crystallized in a formula calling for a four year extension of the Act, but providing only a single year duration of the foreign quotas. It would give a 150,000 ton yearly increase in the basic beet quota, and 50,000 tons more for mainland cane (Louisiana and Florida). There would be no increases for Hawaii and Puerto Rico beyond the growth formula written into the Act when last extended in 1956.

A major proposed amendment would be to give the Puerto Rican quota deficits, which in recent years have been substantial, to Cuba and other foreign nations (except the Philippines) in their present proportions. These deficits currently go to beets and mainland cane. Presumably this provision would satisfy the American refiners, mainly the northeastern group, who incurred losses of meltings from Puerto Rico's reduced crops. The Puerto Ricans never fail to ship in their direct-consumption quotas, however.

Originally the domestic industry proposal called for a five year extension of the entire Act, with the modifications above. It was felt, however, that extension of the foreign quotas for only one year might bring Representative Cooley over to their support. This still might be the case.

Other sections of the amended extension bill would give Hawaiian deficits to beets and mainland cane; beet deficits to other domestic growers, and Philippine deficits to Cuba, and vice versa.

An interesting provision is that "whenever the President finds and proclaims that it is necessary to adjust existing quotas for any foreign country or countries . . . in order otherwise to protect the national interest, he shall by proclamation decrease the existing quotas . . . by such amounts as he shall determine to be necessary and advisable to effectuate and implement such findings."

Known as the "anti-Castro amendment" this proviso has strong support in some sections of the State Department and in other quarters. It would give the United States executive full power to crack down on the Cuban leader should circumstances warrant such action.

Whether a Democratic Congress would give such authority to a Republican president is another question. Some prominent Democrats say this amendment has no chance. In view of this, domestic producers are not insisting on it. One Democratic leader, however, Senator George Smathers of Florida, is on record favoring an amendment which would give the Secretary of State the power to reduce a foreign country's share of the sugar market if that country denied fair treatment to American nationals, their commerce, navigation or industry.

Domestic interests are by no means united in support of these amendments. There is disagreement among one another, and even within areas. Certain segments of the beet sugar industry, for example, are not at all interested in a bigger beet quota. Others, with new reclamation acreage such as those in the state of Washington, are demanding beet allotments for their farmers. Senator Curtis of Nebraska, at the recent consumption estimate hearings before the Department of Agriculture, pleaded for additional quotas for Nebraska's small growers.

The powerful U.S. Beet Sugar Association, with members in 22 states, naturally must press the case of its expansionist members. It is believed they would be happy with their suggested 150,000 ton increase which would more than take care of expected losses through yielding their share of Puerto Rican deficits to Cuba.

The Hawaiians are fairly content with the situation as it is, and would like an extension of the Sugar Act for more than one year in order to take care of their lengthy crop cycle. They would like a higher price for sugar, as would all producers. In this desire they are up against the strong industrial users' group—the bakers, confectioners, bottlers and ice cream manufacturers—and no changes in the sugar law are in prospect that would increase the growers' returns.

The Hawaiian sugar industry is particularly interesting. Lands seem eventually to be taken over for beach developments and home sites. Their industry is by far the most mechanized and scientific in the world. Wages are very high. The whole thing, however, is throttled by Harry Bridges and his Communist thinking longshoremen's union which calls all the tunes.

Louisiana and Florida growers cannot expand production rapidly, but feel they will need room for future growth. Puerto Rico has been plagued by bad weather, labor and mechanization difficulties to the point where quota deficits are a problem instead of overproduction, as in former years.

Most insistent for additional quotas, and the ones who feel the present situation in Cuba is heaven-sent, are the other foreigners. These are mainly the Philippines, Dominican Republic, Mexico, Peru and a newcomer to the lists—Brazil. All have excess sugar, and the American market, at roughly double the world free market price, is highly appealing. Their representatives in Washington have launched strenuous campaigns.

A few other countries are expected to peek over the horizon with covetous eyes at the American sugar bowl.

Dr. Urbano Zaffra, Philippines Minister Counselor, asserts that an increase in the Philippine quota is "imperative" and notes that no increases were given his people in the 1948 Act or in the 1956 extension, when other foreign nations benefited. Dr. Zaffra points to this statement by President Eisenhower made when the Executive approved the 1956 changes:

". . . It was not considered feasible to recommend an increase in the Philippine quota at this time. I believe, therefore, that when new amendments are being prepared at the conclusion of the present Act, consideration should be given to allowing the Philippines to share in increasing consumption, as is now provided for other foreign countries by this bill."

John A. O'Donnell, general counsel for the Philippine Sugar Association, reminds that prior to the first U. S. sugar legislation in 1934 the Philippines had a much higher historical base of participation in the American sugar market than it enjoys today.

"More than 15% of United States sugar used to come from the Philippines," he told me. "Now it is only a little more than 10%. Equity to a friendly nation would seem to call for a substantial increase over our present 980,000 ton quota."

The Dominican Republic presents a strong case. Minister Counselor Marco Antonio de Pena would like to see an additional 400,000 tons added to the Dominican share in the United States market. This astute diplomat recently set up a Washington office to advance the cause of his part of Hispaniola, where sugar was first grown in the Western hemisphere.

Dr. de Pena does not take the position that it is necessary to help the Dominican sugar industry in order to prevent Communism there.

"There are no Communists in the Dominican Republic now and there will not be, whether or not we receive additional participation in the U. S. sugar market," he said. He argues that a non-Communist nation located as is the Dominican Republic close to the United States and thus a safe sugar supplier in time of crisis, should be encouraged in the production of a commodity so vital as sugar.

Relative newcomer to the list of countries anxious to fill the United States sugar bowl is Mexico, which has quadrupled sugar production in less than twenty years. The Mexicans see a current surplus of 400,000 tons and believe their status as a good customer of this country, plus geographical location, makes up a strong case.

Oscar Chapman, former Secretary of the Interior, who has been close to the sugar scene since he came to Washington with Senator Costigan of Colorado, joint sponsor

of the Jones Costigan Act, is their attorney. In 1956 Mr. Chapman dropped a bombshell at the Congressional hearings on Sugar Act extension with a formula calling for much larger foreign quotas based on trade with the United States. Mexico was able to gain a considerable quota increase, but her appetite is by no means satisfied.

Chapman recently returned from Mexico and is understood to have further proposals for aiding Mexico at Cuba's expense.

Peru and Brazil will make strong pleas for larger quotas. In common with the other full-duty countries they have carefully refrained from any suggestion that domestic sugar suppliers should be curbed. Their basic argument is that there is no justification for Cuba to receive a lion's share of the market, particularly at this time, when Cuba's government has turned bitterly anti-American. Peru has a long history of sugar production. Brazil has become a major producer only within the past ten years but her annual production is now well over three million tons. Excluded from the United States sugar market now, her argument is that her trade with the United States surpasses that of Cuba and that barring her from access to our sugar market is unjust.

These South and Central American claimants hint that help for them is essential to the hemispheric solidarity that the United States has long been preaching. They find it difficult to see how Cuba can get away with thumbing her nose at Uncle Sam in such violent fashion.

Whether Castro is a member of the Communist party or not is beside the point. His program has so far followed the party line with such regularity that whether he is actually a Communist makes no real difference.

Whatever happens with sugar legislation, observers in Washington are sure it will be a memorable battle. Industry leaders are generally hopeful it can be conducted without bitterness such as marked the enactment of the Sugar Act of 1937. During that period frayed tempers and name-calling were the rule. President Roosevelt excoriated the "unholy alliance" he said had been formed by certain interests, and the entire sugar industry had a black eye before the consuming public.

Domestic industry leaders are anxious, too, for a quick decision. This may not be forthcoming. Some Congressional leaders I talked with feel that as the present law has a year to run it might be wiser to delay a decision until the last month of the session, in order to get a longer look at world developments. If action is so delayed, the tugging and hauling among the competing groups would be terrific.

Early in December, Dudley Smith, vice-president of the Association of Sugar Producers of Puerto Rico, told this writer that the only thing definitive about the situation was its "utter confusion".

Many sugar representatives, in this period of negotiation leading to what they hope will be a united front before Congress, are naturally unwilling to be quoted, lest they harm their bargaining positions. They are making every effort to close their ranks. They consult frequently with Lawrence Myers, director of the Sugar Division of the Department of Agriculture who is hailed on all sides for his honesty and fairness.

There is a gnawing fear among domestic growers, particularly large units and especially in Hawaii, Puerto Rico and Florida, that some effort may be made to scale down present large payments for compliance with the Act. Such an effort was tried and failed last year, but an economy-minded Congress might renew the effort either by Sugar Act amendments or by limitation in general agricultural appropriations. Some feel there is a real danger and cite this as a reason for a simple extension.

In summary, however kindly one may feel to the Cuban people, it is a fact hardly to be disputed that the advent of Castro will eventually prove a tremendous blow to Cuba. Whether Cuba's sugar quota—her economic blood line—is reduced now, is not clear. But pressures are growing. Other and friendly Latin American states are willing and able to provide this vital product, or will have the ability in a short time. Cuba's preferential tariff and her gigantic sugar quota will be affected in the years ahead.

It is trite language but nonetheless true that the sugar problems of the United States are very serious. Rash, ill-calculated moves to solve them would be a great disservice to the country and the world. If ever wise political and economic statesmanship were called for in national legislation, that time is now, in the consideration of the sugar program.

The welfare and health of millions of people are at stake. Possibly even the peace of the world.

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Sugar Dryer To Bolivia

As part of the $2.5 million dollar expansion program at Central "La Belgica," Santa Cruz, Bolivia, a five by twenty-six foot Standard Hersey rotary dryer and a rotary cooler of the same size has been shipped to Bolivia by Standard Steel Corporation. The mill is owned by Gasser & Cia. who propose to increase the capacity of their mill from 350 to 1400 tons per day grinding capacity. Mr. Gasser visited New York in February of this year to negotiate purchase of new equipment for the expansion of his company's mill and refinery aided by a loan of over two million dollars arranged through the Development Loan Fund in Washington, D.C.

New Steam Pressure Reducing Valve

A pilot operated valve for reducing steam pressure from the boilers for use in the evaporators, vacuum pans and elsewhere in the sugar factory, has been announced by the Klipfel Valve Company. Manufactured in sizes from 0.75 inch to 4.00 inch, it is available with bronze, semi-steel or cast steel body and can handle inlet pressures of 600 psi with automatic settings permitting reduced pressures in the range from five pounds per square inch to 150 psi. A stainless steel ball inner valve, perfectly spherical and extremely hard, closes against a monel seat ring. The control spring attached to the main valve diaphragm is located entirely outside the path of steam flow. Pressure adjustments are made by turning the adjusting screw on the pilot valve.

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"Greater Harvests Of Sugar Cane"

The importance of using proper fertilizer and soil testing in the culture of sugar cane is illustrated in a new film being distributed throughout Latin America by the International Division of Olin Mathieson Chemical Company. The film was produced under the supervision of Dr. E. V. Miller, chief agriculturist of Olin Mathieson with scenes from cane fields in Cuba, Puerto Rico, the Dominion Republic and Trinidad. Entitled "Greater Harvests Of Sugar Cane," it is a 16mm. full color sound film showing remarkable increases in yields per acre. The film is available to sugar associations, experiment stations and other interested sugar groups.

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Dr. Otto Herman Swezey

Dr. Otto Herman Swezey, dean of Hawaiian entomologists, died November 3, 1959 in California. He spent 48 years in Hawaii, coming to the Islands to help beat the leaf hopper threat to the sugar industry. Dr. Swezey became an expert on Hawaiian insects. Employed by the Experiment Station Hawaiian Sugar Planters' Assn., he was elevated from assistant entomologist to head of the Entomology Division.

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William O. Stanton

After a brief illness, William O. Stanton Vice President in charge of sales at The National Sugar Refining Company since 1943, pasesd away on November 12th. Mr. Stanton was widely known throughout the sugar refining industry. Before joining the National Sugar Refining Company in 1940, he had been sales Vice President of the W. J. McCahan Sugar Refining and Molasses Co. of Philadelphia for many years.

Further By-Product Utilization In Taiwan

Behr Particle Board Plant Under Construction

By Dr. Oswald Wyss

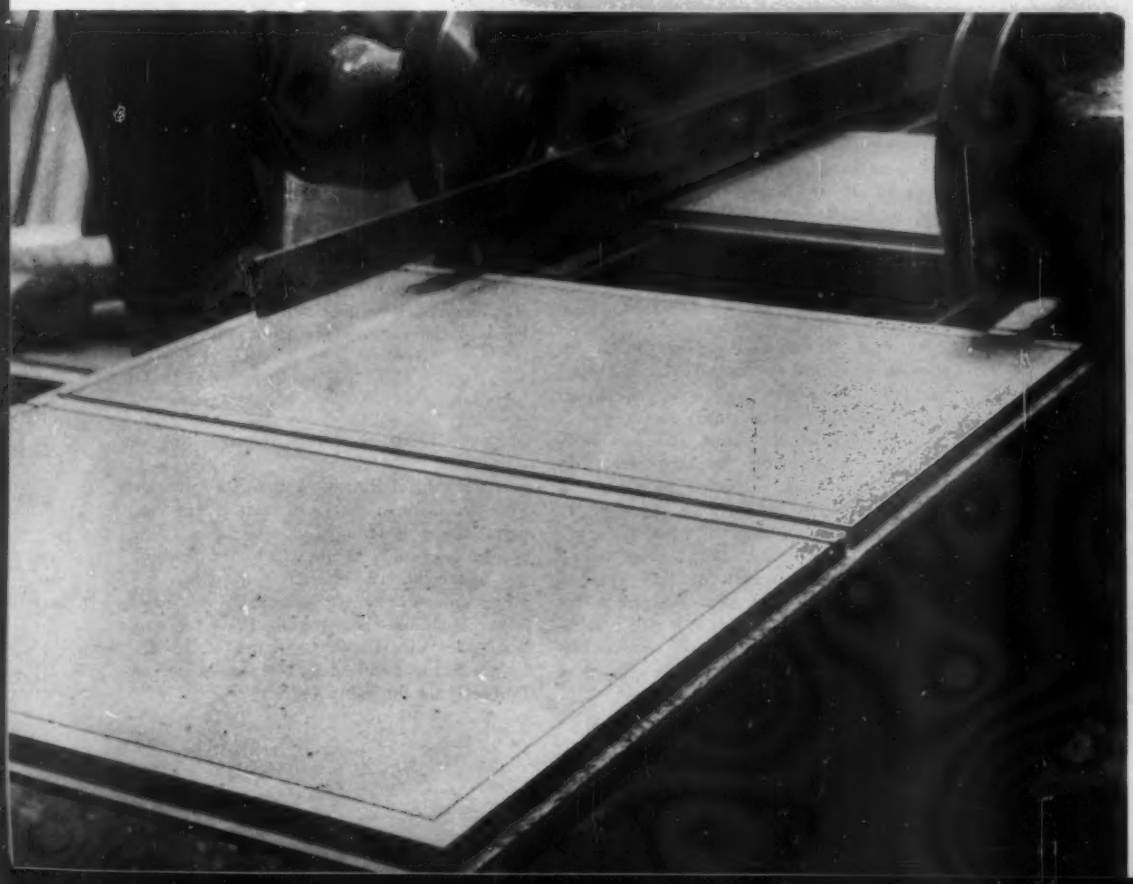
NEARING completion in Taiwan is a new particle board plant using bagasse as raw material with a capacity of 55 tons of three-quarter inch finished board per day which will be operated by the Taiwan Sugar Company at Kaehsiung. The order was placed by the Central Trust of Nationalist China after careful study of the economic and physical aspects of the project. Marketing potential, fuel value of available bagasse, local production costs, production capacity and a host of other factors were carefully reviewed. Bids were invited and the contract was awarded to Behr-Board (System Himmelheber) on a tender submitted by Becker & van Hullen, Krefeld as general contractors for the complete production line. Specifications were checked by Taiwan Sugar Company, I. G. White Engineering Co. of New York as consultants to the Government at Taipei and by the U. S. International Cooperation Administration. The order was placed in January 1959 and the plant is scheduled to start operation during 1960.

Large scale production runs using bagasse from Taiwan in Behr-Board plants indicated that bagasse fibre provided an excellent raw material for the production of a high quality board. Densities, dimensional stability, surface characteristics, machining properties, bending, tensile strength and internal bond are equivalent to particle board made from wood shavings; the color, however, is more grey-brown. The Behr-Board from bagasse can be machined on ordinary wood-working equipment for grooving, drilling, sanding, etc. The board will be used in the building industry as partition walls, doors, floor underlayments and roof sheathing. There are also many applications in the furniture industry, interiors of ships and elsewhere.

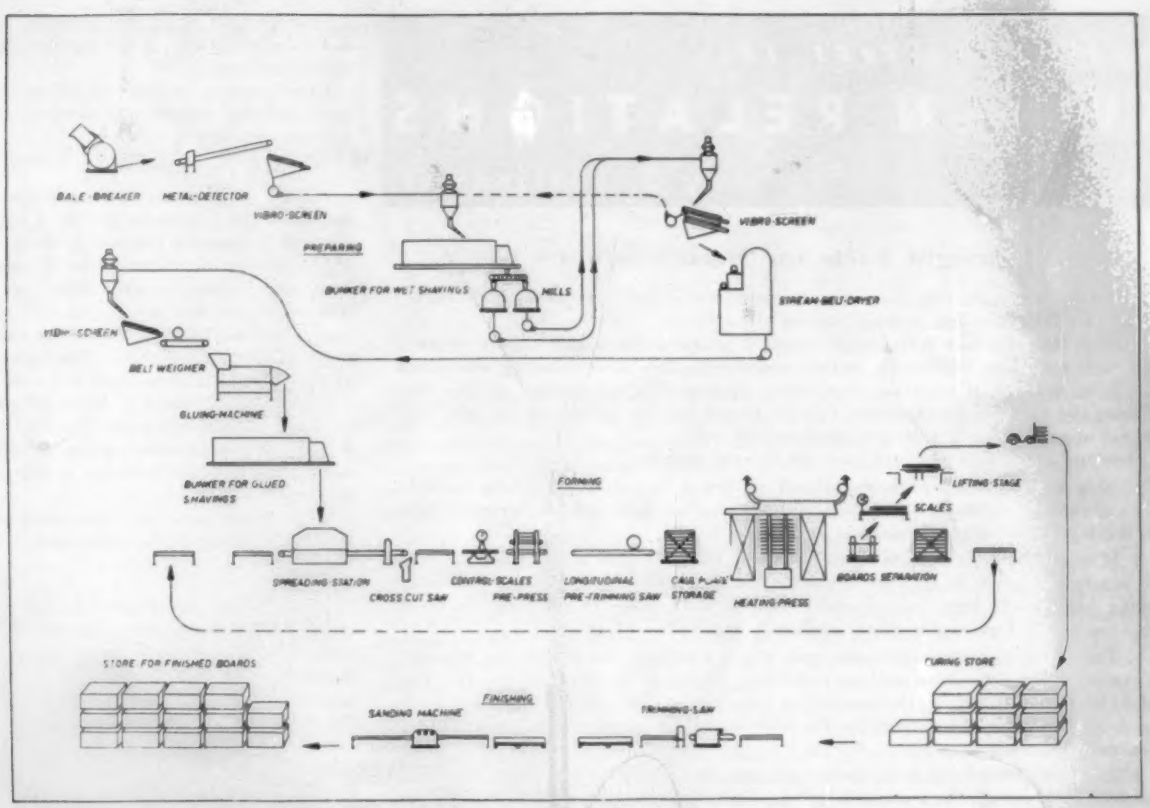
The accompanying diagram illustrates the process. During the crop, bagasse fibre is baled and stored at the various mills operated by Taiwan Sugar Company. As the bagasse comes from the mill it has approximately 100% moisture calculated on bone dry fibre. During storage moisture content is reduced to 27% more or less depending on climatic conditions and the length of time the bales are stored, thereby reducing heat requirements for drying in the production process and eliminating fermentation caused by residual sugar in the bagasse.

These bales are delivered to a bale breaker after which the loosened fibres are delivered to a metal detector, a system of screens, air separators, mills, sifting devices and special dryers. During this stage, pith is mechanically removed as dust.

In special dryers, moisture content is reduced to 5%. Dry fibres are weighed conntinuously and automatically and passed to a mixing machine which is controlled by the continuous weighing apparatus. Considerable accuracy is required in controlling the mixing machine to save glue costs and produce a highly uniform mixture. The mixture of bagasse and glue goes to bunkers which feed it continuously to the spreading and forming machines which operate on an automatic and continuous basis.



Machining Behr-Board with ordinary wood-working equipment.



Schematic diagram of the Behr-Board process for manufacture of particle board from bagasse as installed on Taiwan for the Taiwan Sugar Company.

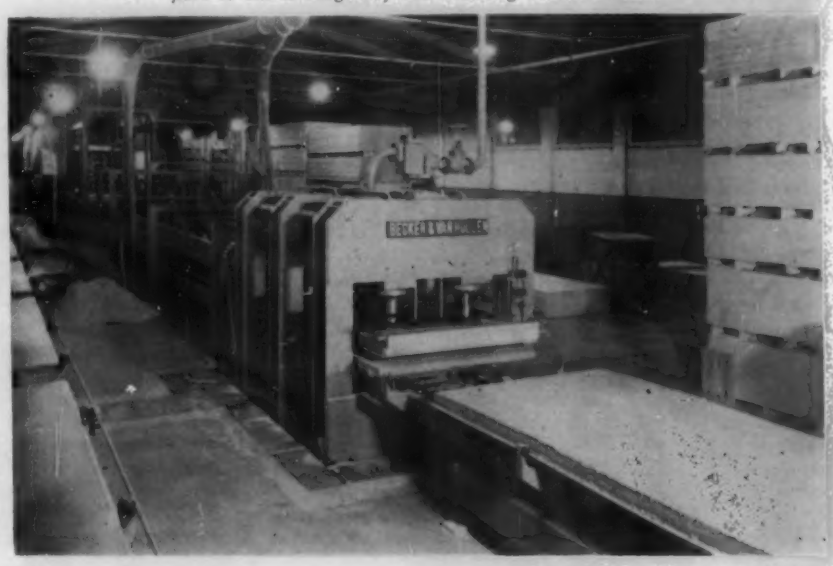
Special design of the spreading and forming machines enables them to lay a regular mat avoiding variations in the density of the finished board. Any irregularities at this stage would cause warping and deformation of the finished board when exposed to temperature and humidity variations.

The Behr-Board plants can produce one-layer or three-layer boards and, by a special laying effect, spread the finer particles on the surface. This results in an exceptional surface which, after sanding, is suitable for direct face veneering without cross-banding.

After laying and forming, the mat is cut to length by a traveling cross-cut saw after which the mat is weighed for production control purposes. It can then be pre-pressed and pre-trimmed after which it receives the hot pressing treatment during which the board is densified and the glue is cured and hardened. The metal cauls on which the mat has been spread are automatically returned to the forming station while the raw board is trimmed, sanded and cured ready for shipment.

Over 30 licensed Behr-Board plants are in operation throughout the world and others are under construction. Many of these plants operate on wood shavings, but the principle is the same as that used in the bagasse board plant in Taiwan. In general it is recognized that a daily production capacity of 50 to 60 tons provides the economical unit; however, plants with a capacity of 25 to 30 tons per day are practical under special conditions. Capacities up to 100 tons per day for a single production line are possible. No waste water problems exist since the Behr-Board process is a dry process and very little fresh water is required.

Producing Behr-Board from Taiwan bagasse; an initial step is the testing of the raw material before the process of by-product manufacture was accepted by the Nationalist Chinese Government agency. Here the cake of impregnated bagasse fibre is cut to length by the traveling cross-cut saw.



Sugar's Progress in

HUMAN RELATIONS

Roy J. Leffingwell

Straight Facts on Mechanization

All sugar producing companies in the world have at least one thing in common—concern over labor's attitude toward the use of machines.

Now is the time that every sugar company in the world should start a program to tell their employes, and people in their community, the facts regarding mechanization. It is doubtful if most top supervisors have enough information at this time to discuss the problem intelligently. Get the record straight before you go into large scale use of machines. It will save much trouble later.

Here are some facts that you must get to your people:

1. Man is a very poor producer without machinery to help him. As an example, it is estimated that a strong worker could produce about $2 worth of electricity each year, turning a hand crank generator.

2. If employes want to earn more money so they can live better there are only three practical ways to do it: work harder; work more efficiently, and use machinery. Working harder will help, as will more efficient work, but, the big opportunity is in the use of machines—plus more intelligent application of skills.

3. The use of machines will temporarily displace people. In Hawaii, for example, employment dropped from a total of more than 50,000 to 17,000 workers, and production increased slightly as mechanization increased. The fact is, if machines do not reduce the number of workers for the same output, it is an indication of wasteful management planning.

4. All savings resulting from fewer employes do not belong to labor. Machines cost money and stockholders who put up the capital are entitled to a fair return on their investment. And, the public is likewise entitled to share in increasing productivity.

But, the loss of jobs in a mechanization program is a temporary displacement. Philip Murray, one of America's best known labor leaders, says he does not know of a single case in which technological change in the United States has actually thrown people out of work.

Largely because of mechanization, wages increased in Hawaii from $1 per day to more than $12 per day. Sugar workers now have money to buy automobiles, television sets and go on vacations. Many displaced from sugar jobs are now selling cars, repairing TV sets and acting as travel agents. However, this changeover takes time and requires much retraining of skills. Obviously, some workers can never fit into the new situations

Karl Marx, the father of socialism, contended that when machines had taken over a major part of labor, manufacturers would need so little labor that the workers would be ground down to poverty. But, in the U.S. more than 95% of the work is now done by tools. Yet, almost 85% of the value of what is made goes for wages. One hundred years ago labor got less than 50% of the value of goods produced.

Workers in most areas of the sugar world are demanding more wages and a higher standard of living. We can not blame them for this. But, management should start now with a program to get the facts straight as to what is involved in getting more money for producing sugar.

"Public relations" is the subject of a special section in the Annual Report of the South African Sugar Association.

A special booklet entitled "Sugar" has been published, because of continuing interest both from South Africa and overseas in the industry. The history and operations of the industry are simply and attractively presented. Effectiveness of the project can be judged by the fact that an immediate reprinting was required to keep up with demand.

A new color motion picture has been produced by the South African industry explaining sugar production.

The Reception Center, located at the Natal Estates factory, had 13,276 visitors during the grinding season. This is an increase of more than 3,000 over the previous year. (As an interesting comparison, the Hawaiian sugar industry entertained 22,365 people in 1959 at their visitors' center at Oahu Sugar Co. This is an increase of more than 4,000 persons over the previous year.)

The South African Association employed an assistant to the public relations officer early in 1959, due to an increase in the amount of work.

Other projects outlined in the annual report included exhibits at selected major agricultural fairs.

Hawaii Commercial & Sugar Co., the largest sugar plantation in the U.S., has changed apprentice training methods from night classes to correspondence courses. The sugar company still holds meetings with employes who are trying to upgrade their positions, but this is only one evening a week, from 7 to 9 P.M. The remainder of the week apprentices study at home.

It is required that 144 hours of related formal classroom instruction be gained each year as a requirement of the apprentice program. This is in addition to time spent on the job.

Twenty-four men are now taking apprentice training at the plantation.

Mossman Mill has adopted an interesting policy change that is attracting considerable attention in the Australian industry. In an improvement program for staff employes' houses, residents have been invited to choose the colors desired for painting of company houses. This is in contrast to the one-color scheme which has long been in effect in the industry. Kidd Street, upon which the staff houses are located, is now referred to as Rainbow Avenue.

A study of Russian productivity—made by the Russians themselves—show that output per production worker is only about half that in the United States.

More than 200 Imperial Sugar Co. employes at Sugar Land, Texas, turned out recently for the 13th annual service awards dinner honoring veterans of the refinery. Service pins and cash awards were presented to 85 Imperial employes with 10 years, or more, of service.

In addition to the 85 honorees, all Imperial employes who had completed 25 or more years of service with the company were invited to attend. All retired employes were also invited.

Few companies equal Imperial's impressive record of longevity of employe service, and the awards dinner is one of the traditional highlights of this program.

At the start of the current grinding season in Australia there was a shortage of experienced cane cutters in the Herbert River section. Italian migrants, mainly new arrivals, provide the biggest single group of cutters. There are only two mechanical harvesters on a full cutting basis and a third will soon be started, in the region.

A New Approach To Mud Filtration

Leaf Pressure Filters Used At Villanueva

By J. M. Santiago,
Consulting Engineer

In the October issue of Sugar y Azucar a general article describing the new Villanueva factory in Honduras was published. One of the unique features of this new sugar factory is the use of leaf pressure filters for the filtration of cachaza instead of the usual rotary vacuum filters. The writer has been asked to describe this station in more detail because of the widespread interest which has been generated by this departure from convention.

The use of vacuum filters was a foregone conclusion as the factory was going through its early stages of planning. Then a report on work that was being carried out by Suchar Sales Corporation on mud filtration with their new FAS-FLO Filter reached the writer and a careful evaluation of the new procedure was made before making a decision to purchase them for Villanueva.

The use of plate and frame presses on clarifier muds a generation ago was brought to mind in the early discussions. With such filters the muds were positively filtered, the brilliant juices were sent right to the evaporator, and the sweetened off mud was cut down to a bin whence it would later be returned to the fields. But the extremely high labor costs which accompanied the use of plate and frame presses on this service plus costly cloth replacement caused the eventual substitution of rotary vacuum filters for presses in most factories of the world. These filters had very little labor or maintenance costs but brought with them difficulties of another sort. All of the juice recovered could not be sent to the evaporator because it was too dirty; as a matter of fact, most factories found they could not use any of the filtrate and returned it all to the clarification system.

This recirculation resulted in an immediate need for 20 to 25% more clarifier capacity. In addition, because the very fine particles which were not removed by the vacuum filter were returned, clarification itself suffered severely. These fines just did not settle. In addition, because of the long retention time of the juice, considerable inversion took place in the clarifier, causing lower yields. These difficulties are widely recognized by sugar factory operators throughout the world.

The FAS-FLO Filter was tried by Suchar Sales Corporation on clarifier muds and was proven to be a sound and practical piece of equipment for cachaza filtration. The FAS-FLO has horizontal leaves which filter on the top surface only. Thus the cake builds evenly across the surface of the leaf and can never slip off in the event of a sudden pressure change or momentary loss in feed. The filter is successful on this service when other pressure filters are not because of the method of sluicing. If filter cloths are not thoroughly cleaned each cycle they will soon be blinded and nothing will pass through them. Plate and frame presses experience this difficulty and the cloth must be changed frequently. The FAS-FLO leaves are sluiced clean by means of jets of water which move across the leaf, striking it almost vertically. A set of cloths lasted the entire crop at Villanueva. One man can operate a battery of FAS-FLO filters, or they can be easily automated.

At Villanueva the mud from the clarifier is delivered through a pump tank to the FAS-FLO filters. The pump tank permits the addition of lime if a correction in pH is deemed advisable. There is no filter-aid required. No bagacillo need be added. A brilliantly clear juice comes from the FAS-FLO and is delivered to the evaporator supply tank. At the end of the cycle the filter is drained and this drainback is immediately picked up by the other filter. The mud in the filter just drained is sweetened-off by means of compressed air and steam. It is then sluiced from the filter to the ditch. Total downtime, including time to fill, drain, sweeten-off and sluice is about thirty minutes. Because this is a batch system more than one filter is desirable; the filter cycles overlap, keeping the flow of mud from the clarifier at a constant rate.

The mud cannot be recovered from the FAS-FLO in the form of dry cake as it is sluiced from the leaves with water. At Villanueva it flows into the irrigation system and is returned to the fields through an overhead spray system.

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facts about sugar

NEW YORK, DECEMBER 8, 1959: Negotiators for the International Longshoremen's Association reached a basic agreement with the New York Shipping Association at the beginning of December. Although the agreement must be ratified by union members, and Gulf Coast shippers apparently are dissatisfied with some of the provisions, B. W. Dyer & Company, Sugar Economists and Brokers, feel that sugar buyers no longer fear the December 27th strike threat.

The terms call for an increase of 41¢ per hour in wage and fringe benefits over the three year period of the contract. If no agreement is reached on the "fee" for certain automation within 10 days after the contract is signed, this point will go to "final-and-binding" arbitration, with a decision required within 30 days.

Domestic spot raw sugar prices (#6) declined from $6.07 per 100 pounds at the beginning of November to $5.73 by December 9th, as overquota sugar moved into spot position. Refined sugar prices were generally unchanged during that period.

On November 24th hearings were held in Washington, D.C. on 1960 sugar requirements and the highlights were: Dr. Meyer of the Cuban Stabilization Institute estimated that the Cuban carryover at the end of 1959 would be 1,100,000 Spanish long tons (1,250,000 short tons) and was confident its 1960 production would cover U.S. and world requirements. Laurence A. Crosby, Chairman of the U.S. Cuban Sugar Council, stated that in the absence of some crisis in Cuba or elsewhere, ". . . world conditions are not likely to have important price-raising effects on the American market. . . . With Cuba's year-end carryover stocks likely to exceed 1,000,000 Spanish long tons, (1.1 million short tons), there might be some talk of crop restriction because of market conditions, but other strong reasons would favor an unrestricted crop." Joseph M. Creed, spokesman for the Industrial Users of Sugar recommended an initial 1960 quota of 9,800,000 short tons, raw value, and pointed out that deficit reallocations under 1956 amendments to the Sugar Act do not ". . . economically supply the consuming areas, namely, the northeast, which need the sugar", and recommended corrective legislation. Phillip E. Jones spoke in place of Robert H. Shields, who was attending the International Sugar Council meeting in Morocco. Mr. Jones represented the major domestic sugar producing groups, and said that there are ample supplies available in the major areas supplying the U.S. Although Puerto Rico and Hawaii will be unable to fill their 1960 quotas, they will have higher production than in 1959. Potential 1960 U.S. distribution was estimated at about 9,414,000 tons, including a 50,000 ton "refining loss", but the total figure could be reduced by 215,000 tons by the absorption of abnormally high cane refiners' stocks and constructive deliveries. A "realistic" initial quota was recommended, and a "hold-back" was suggested. Dr. Urbano A. Zafra of the Philippine Embassy said that the Philippines would have 375,000 tons of additional sugar for 1960 U.S. requirements, if allowed to participate in increased consumption. He pointed out that the Philippines is the only major supplying area that has not participated in the increase in U.S. sugar consumption in the past three years; and he cited President Eisenhower's belief (May 29, 1956) that, when new amendments to the Sugar Act are prepared, consideration should be given to the Philippines in sharing increased consumption. The spokesman for the Dominican Republic also sought a larger share of the U.S. market, and said that they were able to supply 500,000 tons to the U.S. each year.*

Sugar Prices November 8, 1959

Ex. Duty Raw Sugar N.Y.	**5.73**
Average #6 Raw Sugar Jan. 1 to Dec. 8	**5.74**
Refined Sugar Gross N.Y.	**9.55**
#4 Raw Sugar (f.o.b.) Cuba	**3.00**
Average #4 Sugar Jan. 1 to Dec. 8	**2.96**

Future Prices	*Contract #6*	*Contract #4*
January 1960	**5.72**	**3.05**
March 1960	**5.65**	**3.12**
May 1960	**5.69**	**3.13**
July 1960	**5.78**	**3.18**
Sept. 1960	**5.81**	**3.21**

The U.S. Dept. of Agriculture on November 30th rescinded 1959 beet sugar marketing allotments. Despite the record beet crop, which is estimated will produce 2,300,000 short tons, raw value, of sugar, this rescission apparently was based on the official expectation that not every beet processor could fill his individual allotment. This action gave other beet processors a chance to fill not only their own allotments, but the unfilled allotments of others.

Louisiana suffered severe freezing weather, which preliminary reports indicated might reduce the outturn as much as 10%. Thus, instead of earlier estimates of about 470,000 short tons, raw value, production might run closer to last year's figure of 416,000 tons.

In the world market, the spot (#4) price declined from 3.00¢ per pound at the beginning of November to 2.91¢ by November 18th. The price then advanced and again reached 3.00¢ by December 8th.

F. O. Licht's first estimate of 1959/60 world sugar production, which was released early in December, was about 1.5 million short tons below that of last season. The U. S. Department of Agriculture, a few days earlier, predicted a decline of about 1.1 million short tons.

The International Sugar Council on November 27th estimated 1960 world free market requirements at about 6.3 million short tons, raw value, while supplies, including those of non-member countries, were placed at about 7.5 million short tons. Consequently, the initial 1960 export quota was set at almost 6.4 million tons, which was 87.5% of the basic export quotas plus special reserves and permitted carryover from 1959.

Cuban sales for 1959 shipment to the world market (outside U.S.) through November 30th were almost 2.3 million short tons, according to a survey by Willett & Gray, Inc., compared with over 2.8 million

* The quota for Continental United States was announced December 17, 1959 as 9.4 million short tons.

short tons last year. According to these figures, the Cuban carryover at the end of 1959 probably will be almost 200,000 short tons above the 1,250,000 ton estimate made at the sugar hearings, B. W. Dyer & Company concludes.

No Cane Restrictions in Puerto Rico

San Juan, Dec. 2, 1959: The Office of Stabilization and Conservation of the Federal Department of Agriculture has announced that there will be no restrictions on the marketing of cane sugar produced on Puerto Rican farms for the 1959-60 crop. Officials of the Department say that the sugar law requires the imposition of individual production restrictions only when it is believed that there is being accumulated an excessive surplus. It is estimated that the 1959-60 crop will be less than is required to cover the local and continental market quotas and to provide the normal carry-over of surplus sugar. The present arrangement is similar to those established in the last three crops, which were below the market quotas.

Governor L. Munoz Marin has authorized the Department of Agriculture and Commerce to put at the disposal of the Emergency Fund the amount of $250,000 for continued development of incentives for new plantings of sugar cane. These funds have been sufficient to continue this program during the present year so far as it applies to spring plantings by farmers who have less than 300 acres in cane; no funds have been available for autumn plantings. The new grant was requested by Luis Rivera Santos, Secretary of Agriculture, in order to cover the autumn plantings. The object is to stimulate new plantings so that the Island may cover its market quota of 1,286,000 tons of sugar.

Centrals Cambalache and Plazuela, owned by Puerto Rico Land Authority, will be sold to agricultural cooperatives composed of colonos who send their cane to these factories. In this matter the Land Authority has acted in the belief that transfer of these factories to private enterprise is desirable for both economic and social reasons, and it is said that the Governor of Puerto Rico has expressed a wish that the factories be sold to the cooperatives at the lowest possible price. The value of the two properties is about $5,000,000. The Banco Governmental de Fomento is expected to finance the transaction by extending credit to the new cooperatives. The Plazuela cooperatives will be composed of about 700 colonos and the Cambalanche cooperative about 750.

The Engineering Committee which has been formed to develop a mechanical harvester and loader for use in Puerto Rico will meet in Louisiana. The committee will discuss the design of the machine and other details and will outline the field experimental work which will begin about April 1. This committee is composed of Harold A. Willett representing the Sugar Producers Association, Herbert F. Miller of the Federal Department of Agriculture and Dr. Jorge Rodriguez representing the Puerto Rico Agricultural Experiment Station.

Brazil Seeking New Markets

Rio de Janeiro, November 27: A leading article in *Brasil Acucareiro*, the bulletin of the Sugar and Alcohol Institute, analyses the results of the 1958-59 season, stressing the spectacular increase (over one million tons) in national production of usina sugar during the last two years. Such rapid growth, the writer warns, although evidence of the industry's potential expansion, may endanger the balance between supply and demand, on which its progress is founded.

Despite the Institute's efforts to restrict output to 3,151,458 tons in 1958-59 by limiting quotas, production rose to 3,545,596 tons, an increase of 21.1% over the previous season.

During the first six months of 1959 Brazil exported 356,238 short tons of sugar, or approximately 500 tons less than in the corresponding period of 1958. Average F.O.B. prices declined this year from U.S.$70.50 per short ton to U.S.$66.70, but picked up slightly after June.

Owing to inflation and cruzeiro depreciation, Brazil can only maintain exports today by exchange manipulations or other assistance from the monetary authorities. In the 1957-58 season, when the Sugar Institute, with its own resources, was no longer able to cover the difference between international prices and those ruling on the domestic market, it received a long-term loan from SUMOC, the Controller of Currency and Credit. In 1958-59 the Department of Foreign Trade (CACEX) replaced SUMOC and assumed responsibility for foreign sales, financing exports on the basis of the official price, placed on wagon at the mill, plus shipping expenses. Subsequently, in April last, the relation of the cruzeiro to the dollar rose to such a level that CACEX decided to include sugar among the products for which exporters may sell their bills on the free market.

Brasil Acucareiro explains that in March the New York quotation for available sugar averaged 3.05 cents per lb., or $67.24 per metric ton, equivalent to 536.40 cruzeiros for 132 lbs., the weight of the Brazilian bag, at the average exchange of the month, i.e., 133 crs. per dollar; but 536.40 crs. is 153 crs. less than the price F.O.B. of the bag produced in Brazil, namely 689.40 crs. Obviously, the Institute could not compensate such a difference with the resources at its disposal and no sales were closed abroad for account of the new crop until conditions improved. The free rate has since risen to around 190 cruzeiros, thus facilitating exports at international prices.

In view of Brazil's productive potential and the improved capacity for absorption Sr. Gomes Maranham, president of the Sugar Institute, applied for a higher export quota at the recent meeting of the International Council. A Brazilian trade mission is now visiting Russia to discuss measures for improving commercial relations with the Soviet Republics and a substantial increase in the demand for sugar is expected as a result. During the first week in November contracts were signed for the sale of 100,000 metric tons of sugar, 50,000 to Poland for delivery between January and May and 50,000 to Chile, to be shipped between January and March. The price was closed at U.S.$71.12 per ton in each case.

The Brazilian Government, pressed by the Institute, is reported to be approaching United States authorities with a view to sharing in the purchases of sugar for the important American market.

No Cutback in Mexico Despite Surplus

Mexico City, December 9: Mexico will not reduce acreage planted to sugar cane which, in past years, has resulted in high sugar production, and is expected to produce a 738,000 metric ton surplus next year. With this reservation Mexico's Senate has generally approved the International Sugar Pact negotiated in conferences held in Geneva from October 22 to 25 in 1958. The Senate met in secret session with a special commission of the Department of Foreign Relations presenting its recommendation for no cut backs in sugar cane production.

The sugar agreement fixed surplus reserves at 20% of annual production. But as Mexico will have a 738,000 metric ton surplus next year, this works out to 48.95% of Mexican annual production. If Mexico accepted the pact integrally, this would mean that there would have to be an immediate cut back in cultivation areas. The Foreign Relations committee, on advice of the Department of Agriculture, pointed out that this would economically damage a great many cooperative farmers and small private farmers.

Mexico, according to the international pact, has a 75,000 metric ton annual quota, with possibilities of increasing this later on.

With predictions that the Mexican sugar harvests in 1959-60 and 1960-61 cycles will "considerably exceed those of former years," according to such sources as the National Sugar Cane Commission and the Union of Mexican Sugar Producers, federal plans have been put into motion to extend industrialization of sugar.

The new Department of Industry and Commerce, in association with the Union, has formed a research committee covering

industrialization of sugar and its derivatives. The committee is charged with studying and revising actual methods followed by the industry and to seek wider use of sugar and byproducts.

Thus, studies will cover broader industrialization of sugar itself; industrialization of uncrystalized juices; of bagasse and cane juice froth. Apart from this the committee will work on reorganization of the sugar distribution system, covering the actual state of internal market, and possibilities for increasing this in the future.

Corresponding with the drive to industrialize Mexican sugar as tonnage continues its steady rise, is the easing of credits for expansion purposes. Credits are flowing into industry from the Bank of Mexico via Nacional Financiera, the semi-official credit institution, bonds issued by Financiera and placed by the Union of Mexican Sugar Producers, private banks and insurance firms. These latter opened up credits during the last cycle and participation will be greater in those ahead.

Total credits for preparation of cane fields, fertilizers and special plantings came to 302,407,000 pesos ($24,192,560) in 1958, a 5.6% boost over the previous year. For 1959, with figures as yet unavailable, a conservative estimate indicates at least a 8.0% boost over last year. Financing of sugar mill operations, with production as a guarantee, is now running around 600 million pesos annually ($48,000,000).

Freeze Reduces Louisiana Estimate

New Orleans, La., Dec. 4: Adverse weather conditions in the Louisiana sugar district during the month of November have played havoc with the Louisiana sugarcane crop. Killing freezes visited the northern-most sections of the sugar belt on the mornings of November 7th and 8th and all of the Louisiana sugar area experienced freezing temperatures on November 18th and again on November 19th. Fortunately for the cane farmers, the weather has remained on the cold side since the freezes and growers and mill operators are pushing hard to save as much of the crop as possible. It is inevitable, of course, that some cane will be left in the field either standing or through topping operations and it now appears that the sugar production for the 1959-60 crop will not exceed the 443,000 tons production reached last year.

We believe that readers in other areas will be interested in the advice to growers by Lloyd L. Lauden, Agronomist of the American Sugar Cane League, in the all out effort to save the crop. Mr. Lauden advised as follows:

"Growers and processors must cooperate to the fullest extent to get the maximum of this damaged cane milled. Sugar factories can grind to the limit of capacity only if the product being milled is of good quality. Rotted tops, and cane which is sour or stale, reduce grinding rates very much. Clarification of the juice is next to impossible when poor quality cane is milled. Sugar recoveries go down under these conditions. As a result, everyone loses money."

"The theory that a small amount of poor quality cane can be milled with other good quality cane and the result will be good is wrong. The opposite is true. Poor quality cane hurts good quality cane in the factory."

"Factories and independent growers alike should check cane daily and from field to field to know the proper place to top cane. The cane stalk should be split in half, lengthwise, to see the extent of damage. The freezes broke the cell walls on the inside of some joints. Top joints which were not so sweet were damaged more than lower joints. When the walls of cells inside a joint are broken by a freeze the juice flows free inside the joint. Bacteria and other organisms can multiply and spread fast in this juice and that part of the cane stalk deteriorates rapidly. All joints which are watery, soft, brownish in color, and have a rotted sour smell and taste have already gone bad. Every attempt should be made to top below this rotted area."

Hawaiian Cane Diffusion Reviewed

Honolulu, Dec. 4, 1959: "I have great confidence that diffusion will replace milling—eventually", Harold F. Silver, president of Silver Engineering Works of Denver, Colorado, told some 600 Hawaiian Sugar Technologists at their annual meeting.

Mr. Silver in 1942 designed and built the first commercially successful continuous diffuser in the Western Hemisphere. Many of the early model machines were sold to U.S. beet factories.

In 1954, a combination was made with the Danish Sugar Co. which produced a diffuser in Europe that showed great promise. The present unit is called the DdS Silver Slope Diffuser. This is the unit that is now in the second year of pilot plant operation in the Hawaiian sugar industry under joint sponsorship of the Hawaiian Sugar Planters' Ass'n., Kekaha Sugar Co. and commercial firms testing equipment in the experiment.

Initial operations started at Kekaha Sugar Co. late in 1958. During the 1959 grinding season from May 13 to October 9 the diffuser was operated some 940 hours and handled over 13,000 tons of cane, which was 6.49% of the total crop.

Higher extraction is the major goal of diffusion. There appear, however, to be other savings in initial installation and substantial economies in operation and maintenance. In the beet industry, diffusers are removing from 98% to 99¼ of the sugar. Toward the end of the grinding season at Kekaha last year extraction from cane was as high as 98.8%.

The panel-discussion on diffusion at the H.S.T. meeting drew a record attendance. All speakers appeared encouraged over the pilot plant results so far. Mr. Silver commented, "By the end of the 1960 grinding season we will have obtained all the figures from our experimental machine to design a full-scale factory operation."

Boyd MacNaughton, president of C. Brewer & Co., one of Hawaii's big five sugar organizations, told the meeting which was held in Honolulu, November 16-19, that his company—which consists of 10 subsidiary sugar plantations—paid $53 in wages to every $1 in cash dividends that stockholders received during the period 1954-58.

He said by contrast that United States Steel Co. paid $1 in dividends for each $10 paid workers. "Ten to one, instead of 50 to 1, presents United States Steel in a rather favorable light compared to our figures", said Mr. McNaughton.

If poor earnings of the Hawaiian sugar industry in recent years resulted from inherent technological inefficiency, the Brewer executive told the technologists, the outlook would be "discouraging".

"Fortunately, this is not the case," he said, commenting that it was a safe generalization that no other sugar producing area in the world is more efficient in terms of input of manpower, materials and energy per unit of output, than is the Hawaiian industry.

A. G. Budge, president of the Hawaiian Sugar Planters' Ass'n., told the technologists that Hawaii should abandon any idea that they are capable of solving all problems within themselves and that they should draw on the experience of the whole sugar world in seeking their solution.

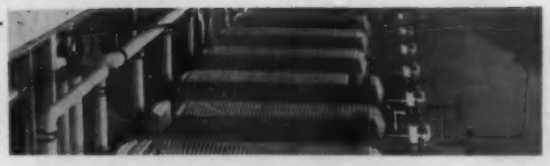
Other guest speakers included Ernest W. Greene, president of Sugar Association, Inc., and U.S. Senator Oren E. Long of the State of Hawaii. Mr. Greene is former H.S.P.A. vice president and Washington representative who retired in 1956 after 36 years of service with the Hawaiian sugar industry.

Also on the program was Donald Maclean, president of the California & Hawaiian Sugar Refining Corp., which is an agricultural cooperative that refines and markets all Hawaiian sugar. It is owned by Hawaii's plantations and independent sugar growers.

Slator M. Miller, H.S.P.A. vice president and secretary who recently returned to the Islands to take charge of the Honolulu office of the sugar association, following several years as head of the Washington, D.C. office, addressed the group of some 350 sugar executives.

Two days of the annual meeting were devoted to research reports of the association's Experiment Station. Dr. L. D. Baver and his staff of sugar scientists, plus experts from within the industry, presented this portion of the program.

Personal press station



• **Malcolm MacNaughton,** president of Castle & Cooke of Honolulu, Hawaii, has been elected to the Board of Directors of the California and Hawaiian Sugar Refining Corporation. He succeeds A. C. Budge.

Lloyd R. Boling

• The Board of Directors of the Dorr-Oliver Inc. well known manufacturers of clarifiers, filters and other equipment for the world sugar industry has appointed **J. D. Hitch Jr.** president, to fill its vacant Board Chairmanship. **L. R. Boling,** currently executive vice president has been chosen to succeed Mr. Hitch as president.

J. D. Hitch, Jr.

• Jorge Ross Ossa, a graduate of M. I. T. in Chemical Engineering, vice president of Banco Edwards, an officer of several other companies in Chile and president of Refineria Vina del Mar announces the appointment of **Eduardo Titus F.** as general manager of the company's two refineries. Mr. Titus, who was formerly assistant manager of the refineries, is currently visiting in the United States and Canada. He is the representative of his company in the Sugar Industry Technicians organization.

• **L. S. McLane,** who has been in charge of agricultural operations for Hawaiian Agronomics Co. (wholly owned subsidiary of C. Brewer & Co.) which is building a new cane sugar operation in Iran, has returned to Hawaii. Mr. McLane, having completed procedure for the Iran sugar development, has been assigned to Brewer's head office in Honolulu to assist the manager of the business development division.

• **Henry W. Collins** was elected a director of South Coast Corporation, a New Orleans based sugar grower and processor.

• The National Sugar Refining Company announced the appointment of **Sedgwick Howard** as vice president, Refinery Management and **Frank Topham** as vice president and general sales manager. Both Mr. Howard and Mr. Topham have been with the company for several years.

• **John W. Lamborn,** vice president of Lamborn & Company, Inc., sugar brokers of New York City, has been named chairman of the Sugar Division of the New York Arthritis and Rheumatism Foundation for 1959-60.

• According to an announcement made by the California and Hawaiian Sugar Refining Corporation, Ltd., **Marshall V. Virello** has been named director of public relations. He will assume his new position on January 1st and will be responsible for the corporate public relations of C and H.

• The California and Hawaiian Sugar Refining Corporation is establishing two separate departments to carry out the functions of advertising and sales promotion. Selected to head these two departments are **Robert C. Cook,** advertising manager, and **Dale E. Maier,** who is being promoted to the newly created position of sales promotion manager.

• Atlantic Sugar Refineries, Ltd., announces the appointments of **E. V. Burgess** to the position of general sales manager and **John M. Anderson** as traffic manager. Mr. Burgess has been associated with Atlantic Sugar for the past 12 years. Mr. Anderson joined the company two years ago as assistant traffic manager.

• The International Sugar Council announced, on November 27th, 1959, at the close of its meeting in Tangiers, that **Dr. Ralph E. Stedman** of the Ministry of Agriculture, Fisheries and Food of the United Kingdom will succeed Eric Roll as Executive Director.

• Koloa factory of Grove Farm Company on the Island of Kauai has named **Masato (Mac) Inouye** as assistant mill engineer. He was formerly design and construction foreman at the plantation.

Maynard C. Isheim

• **Maynard C. Isheim** has been named manager of Standard Steel Corporation's process equipment division in Los Angeles. Standard Steel, among other things, makes sugar procesing machinery. Mr. Isheim joined the company in May 1959 as assistant chief engineer of the process equipment division.

• **Mike Caplin,** formerly mill engineer of the Paia mill of Hawaiian Commercial & Sugar Company has accepted a position as process engineer at Olokele Sugar Co. on the Island of Kauai.

ABSTRACTS–Papers Presented

At The

Tenth Congress, International Society of Sugar Cane Technologists

Dr. O. W. Willcox, Editor

Agriculture

The Mechanical Harvesting of Long Crop Sugar Cane

R. A. DUNCAN, *ISSCT, 10th Congress, Hawaii*

The sugar industry of Hawaii has accumulated a great deal of experience in the mechanical harvesting of long crop, recumbent sugar cane. The standard system which utilizes push-rakes and grabs was arrived at during a relatively short development period at a relatively low cost. These tools present some well known problems but have the advantages of simplicity, reasonable first cost, ease of maintenance, and ease of supervision.

A number of ideas have been tried and an organized program has been in progress to determine the feasibility of higher quality work on an economic basis. The ideas which have reached the experimental machine stage can be classified as cut-only, cut-pile-windrow, and cut-load. The result of this work has had limited acceptance. A cut-only and two cut-pile-windrow machines have been developed to where they can be considered production machines.

■

Liming as a Means to Increase Sugarcane Yield in Taiwan.

S. WANG, T. LAI, C. YANG and T. YANG, *ISSCT, 10th Congress, Hawaii.*

Long-time field experiments have been installed both on several red earths and on an old leached sandstone alluvial soil, to investigate the effect and economy of liming. The lime requirement was found by means of Jensen's method and the liming material used was limestone powder. It is found that the yield of sugarcane was, on average, boosted about 20% higher than the check. The effect is still noticeable in the fourth crop.

■

The Effects of Gibberellic Acid on Sugarcane

R. E. COLEMAN, E. H. TODD, I. E. STOKES and O. H. COLEMAN, *ISSCT, 10th Congress, Hawaii*

The purpose of the investigation reported here was to determine whether gibberellic acid can be used to increase the production of sugarcane. The studies entailed determining the effects of gibberellic acid on germination, growth, maturity, yield, sucrose content, and flower initiation and development. The information presented summarizes briefly investigations carried out by the U. S. Department of Agriculture at the Plant Industry Station, Beltsville, Maryland, at the U. S. Sugar Crops Field Station, Meridian, Mississippi, and at the U. S. Sugarcane Field Stations, Canal Point, Florida and Houma, Louisiana. In general, the effects of gibberellic acid on sugarcane were similar to those reported for other crop plants. Although these responses are of interest from a physiological standpoint, the effects do not appear practical for the production of sugar or sirup. Applications of concentrations as low as 10 ppm to seed cane pieces reduced the percentage of germination. Plants that developed from the treated seed cane showed a rapid increase in height; however, the effect was not lasting.

A single application of gibberellic acid to sugarcane plants increased the apparent height of the stalks, but it reduced the diameter and suppressed tillering. Repeated applications throughout the growing season maintained height increase, but did not increase the ultimate yield of cane or sugar. The sugarcane plant shows a greater relative response to gibberellic acid treatments when environmental conditions do not favor normal development of the stalks.

Gibberellic acid treatments during the flower-differentiation period and after development of flower primordia, appeared to have no effect on percentage of flowering or development of the inflorescence.

■

Deterioration of Cane Quality with Time After Cutting at San Cristobal, Mexico

A. W. TURNER, *ISSCT, 10th Congress, Hawaii*

To investigate deterioration of cut canes under field conditions, tests were established on the commercial varieties, recording losses from January to May, 1958. Each series consisted of daily analyses ranging from 1 to 23 days after cutting. The results in per cent lost weight, Brix, rendement and purity, are graphically illustrated and discussed. Rainfall and mean daily temperature are presented for the duration of the tests.

■

Breeding

The Possible Use of Induced Mutations for Sugarcane Improvement

SAM PRICE and J. N. WARNER, *ISSCT, 10th Congress, Hawaii*

In considering the possibility of utilizing induced mutations for the improvement of sugarcane, two approaches are discussed.

BROTHERHOOD

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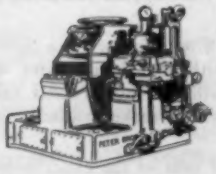

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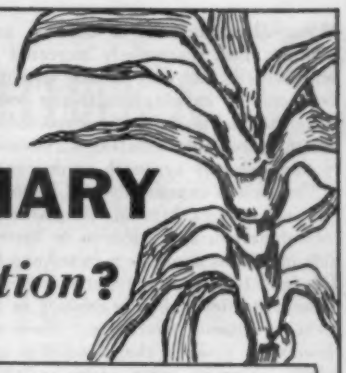

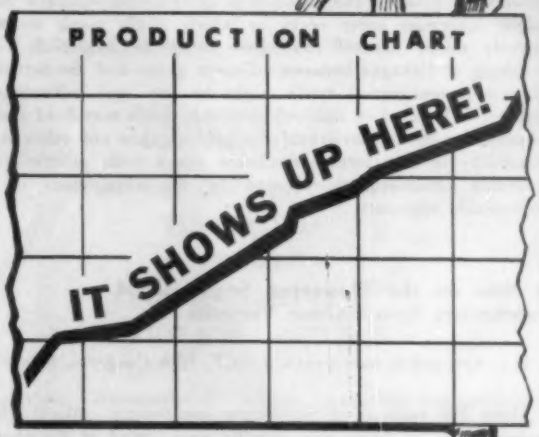

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Mutagenic treatments of cuttings and subsequent selection of mutants from vegetatively increased clones (a variation of bud selection) is the only means known by which the genetic endowment of existing sugarcane varieties might be changed. Nevertheless, the difficulties expected in recognizing and isolating mutants favorably affecting agronomic characters would appear to preclude this approach as uneconomic.

The second approach would be to incorporate mutation induction into existing breeding programs so that through segregation, recombination, and selection in successive generations, unfavorable mutations might be rejected and favorable ones accumulated. The induction of gene mutations alone, particularly the induction of mutant alleles already existing in breeders' collections, would seem a dubious advantage. However, one may postulate on theoretical grounds the possibility of inducing changes which might otherwise never occur or which might occur so infrequently under natural conditions as to be negligible. The breaking of linkages between adjacent genes and the formation of new recombination types might be one such advantageous change. The kind of induced mutation which may hold greater promise for the improvement of sugarcane than any other is the possibility of transferring desirable genes from otherwise undesirable chromosomes followed by the elimination of the undesirable segments.

■

A Note on the Flowering Sequence of Saccharum Spontaneum Variants

R. R. PANJE and K. SRINIVASAN, *ISSCT, 10th Congress, Hawaii*

About 200 variants of *Saccharum spontaneum* collected from various parts of India and clonally propagated at Coimbatore showed a fair regularity in their respective flowering dates. In 124 of them, the mean deviation over 6 years was less than ± 10 days, in 189 it was less than ± 20 days, although the overall flowering season extended over 7 months.

In certain years, flowering was delayed in a significant majority of variants, while in other years, a majority showed earlier flowering. These departures from the mean date appeared to be related to the time and extent of rainfall.

Growing apices of 77 variants were examined monthly for the formation of floral initials. It was found that the formation of floral initials is not simultaneous in all variants, but follows more or less the same sequence as the flowering of the variants, being one to two months in advance of the first short blade in each variant. Apparently, the variants are sensitive to different photoperiods and the formation of floral initials follows the onset of the particular photoperiods in the order of the calendar. Secondary differences in flowering succession probably arise as a result of differences between variants in the speed of development and elongation of the floral axis.

■

Studies on the Floral Characteristics and Breeding Behavior of Certain Sugarcane Varieties

U. VIJAYALAKSHMI and J. T. RAO, *ISSCT, 10th Congress, Hawaii*

An attempt has been made in the present studies to record the floral characters of twenty hybrid varieties in cultivation in various parts of India and give an indication of those characters which may prove of diagnostic value to the sugarcane breeder. A key has been prepared. The lengths of the pedicel, spikelet and callus hairs are found to show minimum variation within a variety while recording maximum variation between varieties. The presence or otherwise of glume IV is a character of importance in differentiating varieties.

The characters of value in the leaf epidermis are the stomatal index and the presence or absence of denticules.

Such flowering characters as time of flowering, time of opening of spikelets, anther condition and pollen fertility have been studied in the varieties. The breeding behaviour of the varieties has been discussed and the more important ones from the breeding point of view indicated.

■

Preliminary Observations on the Fertility of Essential Organs in Arrows of Certain Parental Sugarcane Varieties Subjected to Photoperiodic Treatment

J. T. RAO and KRISHNA KUMARI, *ISSCT, 10th Congress, Hawaii*

By subjecting cane stalks to 2 or 4 hours extra light over the normal and following it up with four hours extra dark at a specific period, it has been possible to induce early flowering in late varieties and *vice versa* as also make available the arrows throughout the year.

It was noticed during the first year of the experiment that the yield of pollen and its fertility was lower in the treated plants. This was the case during the arrowing season and the crosses effected utilizing the photoperiodically treated arrows gave very few germinations.

Detailed studies were undertaken to find out the anther condition, pollen availability, pollen fertility and stigma receptivity in a number of varieties the arrows of which had been subjected to the treatment. In most of the varieties the treated arrows showed fewer open anthers with usually sub-normally developed pollen grains. The pollen was in an agglutinated condition and sticking to the walls of the anther pores and as such was not shed. In a few varieties wherein little pollen could be collected, the fertility was low as judged by the iodine test. In certain varieties various abnormalities of the stamens were noticed. All the three stamens were reduced to staminodes in the variety Co. 779.

The use of the varieties as safe pistil parents (in view of male sterility) was tried and a number of crosses were effected using proven male fertile varieties in combination. In certain varieties there were no germinations when the fluff was sown though under normal conditions. The crosses were expected to give very good germination in view of the high degree of pollen fertility in the staminate varieties. Presumably the pistil had also been rendered sterile.

■

Pathology

Effects of Controlling the Ratoon Stunting Disease on Yields of Present and Former Commercial Varities of Sugarcane in Louisiana.

R. J. STEIB and I. L. FORBES, *ISSCT, 10th Congress, Hawaii.*

Yield tests over a three-year period showed that the ratoon stunting disease seriously reduced the yields of former and present commercial sugarcane varieties in Louisiana. The average increases in tons of cane per acre following the control of the disease for the plant and stubble crops of the two leading varities, presently grown, were 10 tons per acre or 45.6 per cent for C.P. 36-105 and 11.6 tons per acre or 59.8 per cent for C.P. 44-101. Other varieties currently grown which give significant increases in yield following the elimination of the disease were: C.P. 43-47, C.P. 44-155, C.P. 47-193 and C.P. 48-103. No difference as noted for C.P. 29-116, which is considered resistant to the disease.

The following average increases in tons per acre for the plant and stubble crops of former commercial varieties were as follows: C.P. 28-18, 7.9 tons; C.P. 29-320, 4.8 tons; C.P. 34-120, 4.5 tons; Co. 281, 8.3 tons; Co. 290, 7.4 tons; P.O.J. 213, 4.7 tons.

There was a tendency for the disease-free cane to be slightly lower in sucrose than the diseased cane. In Louisiana it is usual for the sucrose to drop to some extent whenever yields go up. Yields of many former and presently grown varieties were restored to their former level after treatment. The first stubble of many varieties was found to yield as much or more than the plant cane following the elimination of the disease.

■

Reversal by Gibberellin of the Stunting of Sugar Cane Due to Fiji Disease.

G. O. OCFEMIA, *ISSCT, 10th Congress, Hawaii.*

Tests were made with gibberellin applied by spraying on the shoots of one-node cuttings of sugar cane infected with Fiji disease. The treatment was started when the shoots were 20 days old and spraying was continued after every two weeks. The results showed that all concentrations of gibberellin, 25 ppm, 50 ppm, 75 ppm, and 100 ppm, caused the treated plants to produce taller plants with more and larger galls than the untreated control. Further tests are in progress to see the effects of continued biweekly spraying upon the size of the stalks.

■

Proposed Book Re Sugar Cane Diseases of the World

J. P. MARTIN, *ISSCT, 10th Congress, Hawaii*

Sugar cane pathologists have, for a number of years, realized the importance of a technical publication on the principal sugar cane diseases of the world.

The committee set up to undertake this assignment selected twenty-one of the major diseases and asked one or more pathologists to prepare a monograph on each disease. At present, ten monographs have been completed.

Elsevier Publishing Company in Holland has offered to publish the monographs in book form at no expense to the Society. The committee accepted the offer which would give the publisher exclusive rights to the sale of the book.

■

Progress Report on the Study of the Mode of Resistance of Genus Saccharum and its Relatives to Downy Mildew

TEH-LING CHU, LII-SIN LEU, and YUN-SUN BAU, *ISSCT, 10th Congress, Hawaii*

In view of downy mildew of sugarcane once being widely spread over the cane-growing districts in Taiwan and because of the cultivation of the highly susceptible variety PT43-52 during the period of 1953-1956, a series of downy mildew resistance tests has been carried out since 1955 in Hsinchu.

The results obtained from the four years of tests, 1955-1958, may be summarized as follows:

(1) On the basis of the relative reaction of five varieties used as standard in the tests representing various degrees of resistance which were generally consistent year to year, the results obtained concerning the relative resistance of all varieties under tests may be considered quite reliable.

(2) It is evident that there are remarkable differences among

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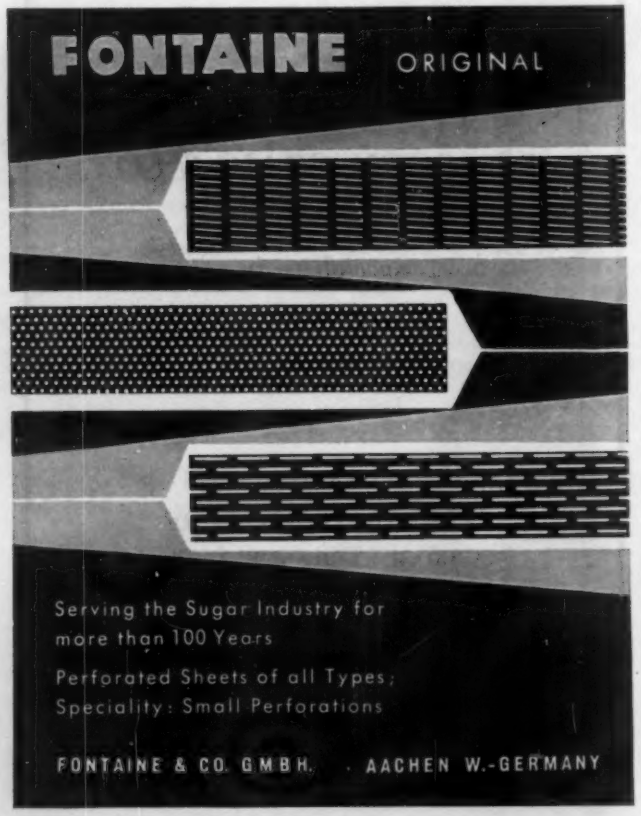


the reactions of test varieties. It was found that one test would be sufficient to differentiate the highly susceptible varieties from the highly resistant varieties if the environment is favorable to the spread of the disease. However, a second test seems to be absolutely necessary for those varieties classified as moderately susceptible to moderately resistant classes, as a safety measure.

(3) As to the reaction of the five species in genus saccharum and the closely related plants tested, some highly susceptible varieties like Striped preanger, and Black Cheribon were found in the species of *S. officinarum*. Most varieties in the species *S. barberi*, *S. robustum*, and *S. sinense* were observed to be resistant or highly resistant, while in the *S. spontaneum* group and sugarcane relatives such as Narenga, Erianthus, Miscanthus, etc. none was infected with sugarcane downy mildew. They seem to be immune to this disease.

(4) Based on the data obtained from the tests made, the degree of resistance to downy mildew should be considered as a fixed genetic character of a sugarcane variety. Though a wide variation in the degree of resistance to the disease was often manifested by the seedlings produced from any particular cross, a higher frequency of infection by downy mildew was always found in a cross with one or both parental varieties classified as susceptible. This would suggest that if possible the highly susceptible varieties should be avoided for use as parents in breeding downy mildew resistant varieties. As the degree of resistance of the seedlings from any given cross studied was not expressed in discrete ways, it could be reasonably explained by quantitative inheritance.

■

Two Unrecorded Leaf Disorders of Sugar Cane in Hawaii.

J. P. MARTIN and C. A. WISMER, *ISSCT, 10th Congress, Hawaii.*

Two leaf disorders of sugar cane, provisionally designated as "leaf stipple" and "ring mosaic" which were observed in 1948 and 1949, are described and illustrated. The evidence at hand indicates this disorder to be genetical in origin. Leaf stipple and ring mosaic, as studied in Java in 1929 by the senior author while attending the I.S.S.C.T. Congress, are described and illustrated.

■

Factory

Weighing Technique to Determine the Effect of Some Inorganic and Organic Compounds on the Rate of Sucrose Crystallization.

T. MORITSUGU, *ISSCT, 10th Congress, Hawaii.*

A method employing weight measurement of a small number of individual crystals was used to determine the effect of several inorganic and organic substances present in natural sugar juices on the rate of crystallization. Studies have been completed at temperatures of 30.6°C. and 40.3°C. The results show the strong rate inhibiting influence of potassium chloride. Sodium chloride behaves in a manner similar to potassium chloride, except that small percentages cause slight acceleration. Calcium chloride greatly accelerates the rate of crystallization, the extent being somewhat greater at 40.3°C. than at 30.6°C. Magnesium chloride also increases the rate, but to a lesser extent than calcium chloride. Potassium sulfate tends to accelerate the rate of crystallization in a similar fashion to magnesium chloride. Both sodium hydrosulfite and manganous sulfate substantially increase the rate of crystallization of sucrose, but sodium sulfite has the reverse effect.

Investigation was also conducted to determine the effect of salts in combination on the rate of crystallization at 30.6°C. Although magnesium chloride increases the rate, it has a negative effect on the rate when added to sucrose solutions containing small percentages of potassium chloride. Mixtures of sodium chloride and magnesium chloride behave in a manner similar to the potassium chloride-magnesium chloride mixtures. On the other hand, addition of calcium chloride greatly accelerates the rate of sucrose solutions containing small percentages of potassium chloride. The extent of this acceleration is greater at 40.3°C. than at 30.6°C. In a like manner the addition of calcium chloride to sucrose solution containing small percentages of magnesium chloride greatly accelerates the rate of crystallization. Sodium hydrosulfite or manganous sulfate increases the rate of sucrose solutions containing small amounts of potassium chloride. Aspartic acid, glutamic acid, aconitic acid, and tyrosine also inhibit the rate of sucrose crystallization to some extent at 30.6°C. The rate is slightly accelerated by the presence of glucose or fructose.

■

Factors Influencing the Growth of Sucrose Crystals.

N. ALBON and W. J. DUNNING, *ISSCT, 10th Congress, Hawaii.*

Features have been found on the surfaces of sucrose crystals which indicate that growth takes place by a dislocation mechanism. Crystals grown from sucrose solutions containing levulose are found to have steps on their surfaces which are smaller in height than those for crystals grown from pure sucrose solution. On the other hand, crystals grown from solutions containing dextrose have steps which are greater in height than those of crystals from pure sucrose solution. Crystals grown from "brown liquor" have steps similar in height to those formed in the presence of dextrose. The rate of advance of the steps has been measured as a function of supersaturation and temperature.

■

Organic Acid Composition of Some Commercial Cane Varieties Grown in Mauritius

D. H. PARISH, *ISSCT, 10th Congress, Hawaii*

Preliminary results are presented for the amino acids and aliphatic acids contents of the juice of several commercial varieties grown in Mauritius. The effect of season and nitrogen fertilization on the levels of these acids has also been examined. The effect of variety, in the case of amino acids, appears to be of minor importance compared with the large effects of maturity and fertilization. However, under fairly standardized conditions of maturity, fertilization and moisture regime, such as would occur on an irrigated estate, the effect of variety assumes greater importance.

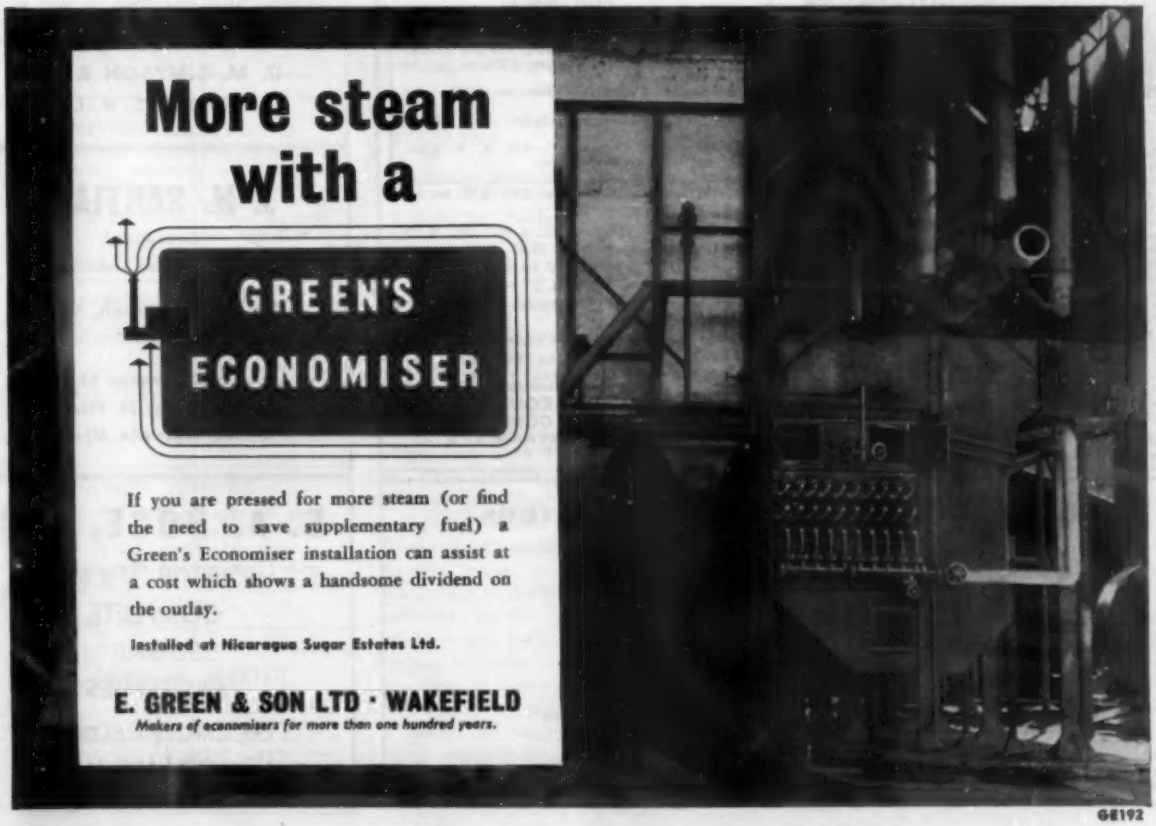
In the case of aliphatic acids no marked trends in content were observed even under a wide range of conditions.

■

Formation of False Grains In The Crystallization Process of Sugar and Its Effects

A. C. Raha, ISSCT, 10th Congress, Hawaii.

The presence of false grain in the massecuites presents many difficulties. These difficulties have been explained in the light of Poiseuille's equation and an attempt has been made to get an insight into the matter.



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Sugar's Future In Puerto Rico

The present status and future outlook of the Puerto Rican sugar industry was outlined by Manuel A. del Valle at a luncheon of the New York Sugar Club on December 16, 1959. Mr. del Valle is well qualified to sum up the situation in Puerto Rico, being President of the Association of Sugar Producers, Chairman of the Board, Farjado-Eastern Sugar Associates and is generally recognized as the leading authority on sugar problems in the Island. While other domestic sugar producing areas were concentrating on better crop varieties, agricultural machines to increase labor productivity and a better job of farming, said Mr. del Valle, a variety of reasons prevented the Puerto Rican industry from improving these essential factors in the sugar producing industry. Mills have achieved a high degree of efficiency and have capacity to meet all requirements for the foreseeable future. Agriculture, however, has suffered.

Starting in 1953 an excellent program was developed through the cooperation of the Government of Puerto Rico, the University of Puerto Rico, the U. S. Department of Agriculture and, of course, the industry itself for the development of better varieties. This work has progressed satisfactorily and should produce measurable results within the next year or two.

Unemployment in Puerto Rico has been relieved by the energetic program for industrialization undertaken by the Commonwealth as well as by migration to the Mainland; hence it is now possible for the sugar industry to investigate the replacement of men by agricultural machines to increase labor productivity and this investigation is being vigorously pressed.

Mr. del Valle said in conclusion:

"I hope my remarks have allayed your fears and re-assured you as to the dynamic progress of our great industry. Do not sell Puerto Rico short."

■

C. J. Welch

In the early part of December 1959, C. J. Welch a retired sugar official, died at his home at Sands Point, Long Island. In his early career he was one of the organizers of Cape Cruz Company, raw sugar merchants with a plantation in Oriente Province, Cuba. Mr. Welch was president of that company for 41 years and was also active with a firm of New York sugar merchants.

■

Harry L. Horn

On November 4th, after a brief illness Harry L. Horn passed away in New York. He was in his 68th year. Mr. Horn was a member of the Sugar Trade for many years and was best known as a specialist in export refined sugar.

■

California Growers To Hear Rep. Cooley

Congressman Harold D. Cooley, one of the nation's most influential farm experts and chairman of the Congressional Committee charged with initiating legislation affecting the fate of the Sugar Act in 1960, will address the 29th. Annual Meeting of the California Beet Growers Association when they gather in Los Angeles on January 22nd. The meeting will also hear talks by Lawrence Myers, Director of the Sugar Division, USDA, Jesse W. Tapp, Chairman of the Board of the Bank of America and Richard W. Blake, Executive Secretary of the National Beet Growers Federation.

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Analisis y Pronóstico

AZUCAR

Enero 1960

Perspectivas Azucareras para 1960

Por Alexander C. Muir,

Gerente, Depto. de Estudios y Estadística, B. W. Dyer & Company

AUNQUE los precios del azúcar a principios de 1960 puedan seguir cotizándose por debajo del mínimo de 3.15 centavos citado en el Convenio Internacional Azucarero, las perspectivas de la oferta y demanda sugieren que cabe anticipar cierta firmeza en el mercado. Desde luego, si el resurgimiento de la lucha política en Cuba llegase a poner en peligro la producción azucarera en ese país, los precios del azúcar podrían ascender más aún.

En cuanto a la posible producción cubana (que se estimó en 6 millones de toneladas cortas, contra 6.6 millones en 1959), el Departamento de Agricultura de EE. UU. declara que ". . . Cuba presenta el pronóstico más incierto para Norteamérica donde la producción de azúcar en la campaña de 1959-60 más bién la puedan determinar los acontecimientos políticos y económicos que las condiciones climáticas o la cantidad de caña disponible. . . ."

Aunque cualquier conjetura acerca del monto exacto de la producción de 1960 resulta prematura, importa notar que ya desde noviembre uno de los directores del Instituto Cubano de Reforma Agraria fue citado en Roma de haber dicho que el Gobierno de Cuba no permitiría que disminuyera la producción de azúcar.

En las audiencias públicas celebradas en Washington el 24 de noviembre acerca de la cuota de EE. UU. para 1960, el Dr. Meyer del Instituto Cubano de Estabilización del Azúcar calculó que el sobrante de azúcar a fines de 1959 ascendería a 1.3 millones de toneladas cortas, y confiaba en que la producción de Cuba en 1960 bastase para satisfacer las exigencias de EE.UU. y del mercado mundial. Laurence A. Crosby, presidente del Consejo Cubano Azucarero en EE.UU., declaró que ". . . quizás se hable algo sobre la limitación de la cosecha debido a las circunstancias del mercado, pero hay otras poderosas razones que favorecerían una cosecha ilimitada".

Volviendo al pasado, despues de que cesaron las hostilidades en Cuba a fines de 1958, los precios del azúcar en el mercado mundial descendieron persistentemente desde 3.67 centavos la libra a 2.55 centavos en julio, o sea el más bajo nivel en los últimos 18 años. No obstante la reducción de las cuotas de exportación el 17 de junio a los niveles mínimos establecidos por el Convenio Internacional Azucarero, la abundante cosecha de remolacha recogida en Europa en 1958 surtió el efecto de aminorar las compras. Sin embargo, a principios de agosto Rusia compró inesperadamente 170,000 toneladas de azúcar en Cuba, con lo que ascendieron los precios mundiales del azúcar. La grave sequía de 1959, que causó fuertes estragos en la cosecha de remolacha en Europa, produjo otro aumento en los precios mundiales de azúcar en plaza (a 3.17 centavos la libra) a mediados de septiembre.

Aunque Rusia compró otras 330,000 toneladas de azúcar cubana, los precios mundiales descendieron en octubre, cuando Cuba trataba de vender su exceso de azúcar. Aunque en noviembre se registró cierta firmeza, el precio mundial del azúcar osciló por debajo de 3 centavos la libra en 1959, comparado con 3.50 centavos en 1958.

F. O. Licht calcula la producción mundial en 1959/60 alrededor de 54.7 millones de toneladas cortas, valor crudo, contra 56.2 millones de toneladas en la campaña anterior, o sea una disminución de 1.5 millones de toneladas. La producción en Europa Occidental se calcula en unos 8.5 millones de toneladas cortas, valor crudo, comparado con 9.6 millones en 1958/59. La producción en Europa Oriental se calculó en unos 10.2 millones de toneladas, contra 11 millones de toneladas en la última campaña.

El Departamento de Agricultura de EE.UU. calcula que la producción mundial en 1959/60 ascenderá a 54.5 millones de toneladas cortas, o sea 1.1 millones de toneladas menos que el alto total en la campaña pasada. Los descensos más marcados corresponden a Rusia, a Francia, a Alemania (Oriental y Occidental), así como al dudoso cálculo cubano. También se espera que Australia y Brasil tengan marcados descensos en producción, los que reflejarán las limitaciones de producción ante sus fuertes existencias de azúcar y limitación de las exportaciones. La producción en Estados Unidos y México se espera que sea algo más alta.

En los últimos años, el consumo mundial de azúcar ha aumentado más de 5% cada año, según los cálculos de F. O. Licht. Por lo tanto, si el consumo en 1960 acusa este aumento normal, debería exceder ligeramente el cálculo de producción. Por otra parte, las existencias mundiales aumentaron más de dos millones de toneladas durante la campaña de 1958/59, o sea a unos 13.5 millones de toneladas cortas. Por consiguiente, las existencias son suficientes para hacer frente a cualquier aumento normal en consumo.

El Consejo Internacional Azucarero se reunió en Tanger, Marruecos, a fines de noviembre y fijó las cuotas de exportación provisionales para 1960 en el 87.5% de la cuota básica de exportación. Esto redujo las cuotas de exportación en 900,000 toneladas cortas y las puso más en consonancia con el calculo de las exigencias del mercado libre de 6.3 millones de toneladas cortas, valor crudo. Las exigencias del mercado libre para 1959 fueron calculadas en seis millones de toneladas, lo que sólo representa una pequeña parte de la demanda total mundial.

De acuerdo con una resolución aprobada en agosto, el Consejo acordó que Cuba y la República Dominicana debieran tener el derecho de llevar al año de 1960 hasta 190,000 y 24,000 toneladas cortas, respectivamente, de sus cuotas de 1959, cuyas cantidades se agregarían a sus cuotas de 1960.

En cuanto a la situación en los Estados Unidos, los precios de azúcar crudo nacional descendieron abruptamente durante los primeros meses de 1959, toda vez que el problema de financiar las fuertes existencias cubanas y el deseo de acelerar el movimiento de azúcar proveniente de Cuba ejerció una presión abnormal en el mercado. Al parecer, la consiguiente reducción de las existencias en EE.UU. resultó ser demasiado drástica, y un nuevo examen de la oferta y demanda en perspectiva dió lugar al ascenso de los precios de azúcar crudo sobre el bajo nivel de $5.75 las 100 libras en abril, base derechos pagados.

Subsiguientemente, las entregas de azúcar refino comenzaron a ascender a altos niveles debido a la época de fuerte calor, a la amenaza de huelga de estibadores, y ante el deseo de adelantarse al aumento de los precios de azúcar refino previamente anunciado y que entró en vigor el 1° de octubre en la región del Nordeste. Anteriormente, los precios de azúcar refino en esta región habían bajado de $9.35 a $9.20 a

partir del 16 de febrero, y a $9.05 a partir del 23 de marzo. Subsiguientemente, los precios en la misma región ascendieron a $9.35 el 18 de mayo. En febrero se fijaron precios de entrega sobre azúcar líquido y a granel para distintas zonas en algunos Estados del Nordeste.

A mediados de octubre, los precios de azúcar crudo nacional ascendieron al alto nivel de $6.57, base derechos pagados, pero volvieron a descender en noviembre debido a las ofertas de azúcar en exceso de las cuotas.

La cuota inicial de consumo de EE.UU. para 1959 fue fijada en 9,200,000 toneladas, pero fue aumentada 100,000 toneladas el 3 de septiembre y otras 100,000 toneladas el 20 de octubre. Puerto Rico tuvo un déficit calculado en 222,623 toneladas, Hawaii de 162,492 toneladas, e Islas Virgines de 3,856 toneladas, cuyos déficits fueron reasignados. De esta reasignación, la región remolachera nacional recibió 223,185 toneladas, la región cañera continental 68,984 toneladas, y Cuba 95,802 toneladas. Aparte de lo anterior, el 1° de octubre se autorizó la importación y refinación bajo fianza de azúcar excedente de cuotas ". . . para satisfacer las necesidades de refinerías en el Litoral Oriental".

Durante la audiencia pública sobre cuotas celebrada en noviembre, el Sr. Joseph M. Creed, portavoz de los consumidores de azúcar industriales, recomendó una cuota inicial para 1960 de 9,800,000 toneladas cortas, valor crudo. El Dr. Phillip E. Jones, en representación de las principales organizaciones de productores nacionales de azúcar, calculó las posibles exigencias de consumo en EE.UU. para 1960 en 9,414,000 toneladas, incluyendo una "pérdida en refinación" de 50,000 toneladas, pero dijo que el total podría ser reducido 215,000 toneladas tomando en cuenta las fuertes existencias en manos de refinadores y las "entregas simbólicas" (hechas teóricamente a fin del año para completar la cuota, pero no efectuadas prácticamente hasta el año siguiente). Aunque opinó que Puerto Rico y Hawaii, una vez más, no podrían satisfacer sus cuotas de 1960, estas regiones tendrán mayor producción que en 1959.

Las existencias en manos de refinadores a fines de 1959 probablemente superaban la relativamente alta cifra de 597,000 toneladas anunciada a fines de 1958. Aunque no cabe duda de que haya ocurrido cierta reducción en existencias durante diciembre, después de la noticia que los estibadores pensaban firmar un contrato de tres año con los armadores de Nueva York, la preocupación sobre los acontecimientos políticos en Cuba probablemente fue un factor compensador.

Las "existencias invisibles" (en manos de consumidores de azúcar industriales, empresas de múltiples establecimientos, distribuidores al por mayor, etc.) a fines de 1959 probablemente eran algo más bajas que en 1958. Las entregas de azúcar refino en EE.UU. durante 1959 probablemente se aproximaron al cálculo de consumo de 9,150,000 toneladas cortas, valor crudo. Las "entregas simbólicas" teóricamente hechas a fines de 1958 fueron calculadas en 90,000 toneladas, y una cifra aproximadamente igual probablemente fue cargada a la cuota de 1959. Aunque las "existencias invisibles" a fines de 1959 hayan sido algo menores que las del año anterior, es probable que hayan pasado de lo normal. A no ser que los acontecimientos en Cuba estimulen la demanda, la absorción de las "existencias invisibles" debieran limitar las entregas durante la primera parte de 1960.

Se anticipan amplias exitencias para satisfacer las necesidades de EE.UU. en 1960. La producción de azúcar de remolacha en EE.UU. probablemente ascienda a 2.3 millones de toneladas, valor crudo, contra 2.2 millones de toneladas en 1958. A pesar de las heladas en Louisiana, la producción de azúcar de caña continental probablemente ascienda a unas 600,000 toneladas, contra 579,000 toneladas en 1958. Como se dijo anteriormente, aunque se espera una vez más que Puerto Rico y Hawaii tengan déficits, éstos probablemente sean menores que en 1959. La producción de Filipinas debe aproximarse a la alta cifra de más de 1.5 millones de toneladas en la campaña anterior.

En 1959, los precios de azúcar crudo en plaza oscilaron alrededor de $6.25 las 100 libras, base derechos pagados; en 1958 alrededor de $6.27; y en 1957 alrededor de $6.24. Aunque los precios fluctuaron notablemente durante cada uno de los tres años, la similitud de los promedios anuales sugiere que ello se debe más bien al sistema de cuotas que al azar. Toda vez que el Indice de Precios para el Consumidor, mencionado en la Ley Azucarera como "norma de consulta", probablemente ascienda un poco en 1960, es improbable que el objetivo de precios del Secretario de Agricultura sea más bajo que en 1959. Aunque las dificultades en el financiamiento de la producción cubana en 1960 tal vez aceleren los embarques, la preocupación sobre los posibles acontecimientos en esta desdichada isla puede servir de freno contra el descenso de los precios que normalmente suele ocurrir a principios de año.

El Congreso tiene en su agenda el estudio de la extensión de la Ley Azucarera vigente, que expira el 31 de diciembre de 1960. Varios Senadores y Representantes han sugerido que se reduzca la cuota de Cuba. Si la cuota de Cuba llegase a ser reducida bajo la nueva Ley Azucarera, los EE.UU. podrían reponer el azúcar cubano con azúcar de muchas procedencias. Como ilustración, en 1959, Cuba produjo 6.6 millones de toneladas cortas de azúcar, valor crudo; en ese año, la cuota de Cuba para EE.UU. pasó de 3.2 millones de toneladas.

Como los precios de azúcar crudo vendido en los EE.UU. son generalmente más altos (unos $2.50 las 100 lbs. a fines de 1959) que los de azúcar crudo vendido en el mercado mundial, los vendedores en países exportadores de azúcar probablemente se afanarían por colocar todos sus excesos de azúcar en EE.UU., siempre que continuase esta diferencia de precios y que se cambiasen las cuotas de EE.UU., autorizando tales importaciones.. Al mismo tiempo, si tales países fuesen avisados con bastante anticipación, también podrían aumentar su producción considerablemente en años venideros.

Durante las audiencias públicas celebradas en noviembre con relación a las cuotas, los portavoces de Filipinas y de la República Dominicana solicitaron mayor participación en la cuota de EE.UU. e indicaron que podrían entregar 375,000 toneladas y 500,000 toneladas adicionales, respectivamente. Además, partiendo de los cálculos de producción y demanda local en 1960, los siguientes países probablemente podrían embarcar más azúcar a EE.UU., como sigue, en toneladas cortas, valor crudo: Taiwan (Formosa) 800,000; Brasil 500,000; Perú 400,000; y México 300,000. Este total de casi 3 millones de toneladas es aparte de la cuota conjunta de estos países, ascendente a 1,227,000 toneladas, para embarque a EE.UU. en 1959.

Otros países en Hispanoamérica y en la región del Caribe podrían suministrar otras 100,000 toneladas. Además, los productores de azúcar de remolacha en EE.UU. probablemente podrían suministrar una cantidad considerable de azúcar adicional, si les fuese permitido hacerlo.

Si todo el azúcar vendido por Cuba en EE.UU. fuese desplazado, la primera se vería obligada a vender su azúcar en el mercado mundial con una pérdida hoy día calculada en unos $150,000,000, que representa la prima recibida por Cuba cuando vende su azúcar en el mercado de EE.UU. protegido por el sistema de cuotas. Solamente esta pérdida económica probablemente arruinaría a Cuba. Además, la desorganización de las vías normales de distribución para deshacerse de las crecidas existencias, que Cuba tendría que vender en el mercado mundial, probablemente ocasionaría más pérdidas. Por lo general, la conquista de nuevos mercados azucareros solo se puede realizar a costas de concesiones de precios.

La Junta de Administradores de la New York Coffee & Sugar Exchange, Inc. aprobó una nueva forma de contrato #7 estipulando que las entregas de azúcar crudo se haban a granel en vez de sacos.

Los precedentes en cuanto al traspaso de actividad de un contrato anticuado a un contrato nuevo sugieren que las operaciones en el contrato #6 iran disminuyendo gradualmente, toda vez que el contrato #7 se ajusta más a las prácticas seguidas en la compra-venta de azúcar crudo. Por consiguiente, debiera registrarse un cambio gradual en los meses de entrega del contrato #6 al contrato #7.

Varias Alternativas

Suerte de la Ley Azucarera en 1960

Por William H. Doherty

El Sr. William H. Doherty, reconocido experto en problemas legislativos de la industria azucarera, anteriormente asociado a la oficina de la Hawaiian Sugar Planters' Association en Washington y ahora ejerciendo la profesión de abogado independiente, hizo un extenso estudio de las posibles alternativas que ahora confronta la Ley Azucarera de 1948 (enmendada) para la revista *Sugar y Azucar*. La Ley expira en 1960, y parece que el Congreso tratará de prorrogarla antes de que se suspenda la presente Sesión. Tal acción podría afectar profundamente el futuro de muchas regiones abastecedoras de azúcar al mercado de EE.UU. Se estima que el análisis presentado en el artículo inserto es sumamente importante. —*Editor*.

Sin duda alguna, el Congreso de EE.UU. prorrogará la Ley Azucarera de Estados Unidos en 1960, extendiendo su vigencia un año por lo menos.

Esta es la conclusión del autor después de una encuesta entre todos los elementos de la industria, nacionales y extranjeros, y entrevistas con los principales legisladores de ambos partidos cuando se reunieron en Washington para la Segunda Sesión del 86° Congreso.

Es casi seguro que se registrará un acalorado debate sobre los múltiples proyectos de enmiendas tendientes principalmente a aumentar las cuotas de varios países abastecedores a expensas de Cuba. Cualquier modificación de las cuotas es hipotética, desde luego, ya que la opinión de un poderoso elemento se opone a cambio alguno por el momento.

Este cuadro puede cambiar por el impacto de los acontecimientos mundiales. Pero, si no ocurre nada inesperado por ahora, la Ley Azucarera, que expira a fines de 1960, no se dejará caducar. Los senadores y diputados más prominentes dicen que esto sería "inconcebible". La Casa Blanca y los departamentos administrativos están decididamente en favor de la extensión de la Ley Azucarera.

Las aspiraciones e insistencias de casi todas las regiones abastecedoras de azúcar en mayor participación en el mercado norteamericano ascendieron a un alto nivel con el advenimiento del gobierno de Fidel Castro en Cuba. Frustrados el año pasado por la negativa del Congreso a tomar medida alguna, estos abastecedores están acelerando sus esfuerzos ahora. Ellos consideran que la reducción de la enorme cuota de Cuba es, simplemente, un caso de justicia. El sentimiento público contra las medidas de Castro, más las reconocidas y justas exigencias de ciertas regiones productoras, por lo menos, indudablemente culminarán en acelerar los esfuerzos por satisfacer en parte las aspiraciones de dichas regiones.

Los que pretenden aumentar la producción también han ganado el apoyo de elementos que jamás habían tenido que ver con legislación azucarera. Los inversionistas norteamericanos en petróleo, ganado, negocios bancarios y otras empresas en Cuba se sienten agraviados por las confiscaciones bajo el gobierno de Castro, y estiman que ello justificaría represalías.

Las severas medidas y expropiación de tierras dedicadas al cultivo de caña anunciadas por el Primer Ministro de Cuba parecen indicar que una marcada reducción en la cuota de Cuba, en beneficio de los productores en Estados Unidos y en algunos países extranjeros, es inevitable. No obstante, no hay seguridad de que esto ocurra.

El autor ha observado que ciertos elementos en los Departamentos de Estado y de Agricultura opinan que la Ley Azucarera no se debe tocar por el momento. Este punto de vista concuerda con el sentir de importantes elementos en círculos legislativos.

Probablemente, la figura dominante en lo que a legislación azucarera se refiera sea el Sr. Harold D. Cooley, representante de Carolina del Norte y presidente del Comité de la Cámara de Representantes en asuntos agrícolas, que inicia toda legislación azucarera. El Sr. Cooley, que es un legislador veterno de indiscutible habilidad, me dijo que en esta sesión del Congreso "sin duda alguna" se enmendaría la legislación azucarera, y agregó:

"Aunque mi punto de vista sobre este problema es bien claro, no insistiré en curso alguno, sino que aceptaré y estudiaré los puntos de vista de todos los interesados. Yo desempeñaré mi cargo de un modo absolutamente imparcial.

"No obstante la gravedad de la situación en Cuba, sigo creyendo que no debemos valernos de medidas punitivas, tratándose del bienestar del pueblo cubano. Las cuotas estipuladas en la ley que rige la política azucarera parecen ser justas y equitativas, y hasta ahora no se han presentado argumentos convincentes que justifiquen la revisión de las cuotas estipuladas en la ley vigente.

"Al dictar nueva legislación azucarera, creo que debemos evitar hacer un mártir del Primer Ministro de Cuba, pero tampoco debemos hacerlo un héroe, sino que debemos estudiar el asunto objetivamente. Como la Ley no caduca hasta fines del año que viene, una prórroga de un año permitiría continuar el programa actual hasta fines de 1961, cuando podríamos reexaminar el asunto y modificar o enmendar la Ley según se crea entonces necesario o conveniente."

Otra importante figura en legislación azucarera es el Senador Allen Ellender de Louisiana, presidente del Comité del Senado en materia agrícola. En un reciente discurso dijo: "Es muy posible que en 1960 se registren ciertos cambios en las cuotas", en vista de los acontecimientos en Cuba, pero agregó: "Yo estaría dispuesto a acatar el sistema actual de cuotas, a fin de evitar mayor fricción con nuestros vecinos al Sur, siempre que ellos pudiesen ser persuadidos a establecer una forma de gobierno cabal y democrática."

El Senador Wallace F. Bennett de Utah, jefe republicano del sector remolachero, dijo que era evidente que la próxima sesión del Congreso prorrogaría la Ley Azucarera actual de una forma u otra, "la que resultó ser tan beneficiosa para los consumidores y los productores durante un cuarto de siglo."

El año pasado el Senador Bennett introdujo un proyecto de ley patrocinado por otros 47 senadores, proponiendo la prórroga indefinida de la Ley Azucarera. Ahora me dice:

"Cuando comience la próxima Sesión se aclarará bastante más la forma exacta en que debe redactarse la extensión en provecho nacional.

"Entre los factores que debemos considerar figura el plazo de la extensión. A pesar de las incertidumbres en la región del Caribe, existen muchas razones para renovar la Ley Azucarera por un término de varios años. Uno de los principales beneficios de la Ley Azucarera ha sido la estabilidad que trajo al mercado azucarero, tanto bajo el punto de vista del consumidor

como del productor. Naturalmente, tal estabilidad sería reforzada si en esta Sesión fuese aprobada cuanto antes una Ley de largo plazo.

"Sin duda alguna se presentarán propuestas de cambios en la Ley vigente. Tanto los comités correspondientes como el Congreso en general querrán estudiar tales propuestas a la luz de las circunstancias actuales."

Tanto los productores de azúcar nacionales como los extranjeros reconocen perfectamente que las acciones del Primer Ministro Castro de Cuba, ya sean o no dictadas por ajenos, no son en sí suficientes para cambiar la larga dependencia de EE.UU. en Cuba como su principal abastecedor de azúcar. Consideran, no obstante, que ahora es el momento propicio para hacer sentir sus demandas de cuotas considerablemente mayores. Los productores nacionales alegan que se debe permitir la expansión de la industria azucarera nacional en justicia a nuestro pueblo. Los abastecedores extranjeros, con la excepción de Filipinas, sólo tienen una infinitésima participación en el mercado azucarero de EE.UU., por lo que sus argumentos en pro de aumentos son plausibles.

Por lo tanto, los proyectos de enmienda se están preparando con mucho cuidado. Los productores nacionales, dominados por los cosecheros de remolacha (que representan el mayor sector), están tratando de presentar un frente unido. Saben que el Congreso, en un año de elecciones presidenciales y con la pronta clausura de las convenciones políticas, no estará dispuesto a servir de árbitro en cualquier debate que pueda surgir entre ellos mismos.

Al aproximarse el Año Nuevo, sus ideas casi se habían cristalizado en una fórmula que implica la extensión de la Ley Azucarera por un período de cuatro años, pero que limita a un año solamente la vigencia de las cuotas extranjeras. Esto produciría un aumento de 150,000 toneladas anuales en la cuota básica de azúcar de remolacha, y 50,000 toneladas más en la cuota de azúcar de caña continental (Louisiana y Florida). No habría aumentos para Hawaii ni Puerto Rico más allá de la fórmula de desarrollo prescrita en la Ley prorrogada en 1956.

Una importante propuesta de enmienda le daría los déficits de la cuota de Puerto Rico, que en años recientes han sido considerables, a Cuba y a otros países extranjeros (exceptuando Filipinas) en sus proporciones actuales. Al presente, estos déficits son asignados a las regiones remolachera nacional y cañera continental. Se supone que esta estipulación satisfacería a los refinadores nacionales, principalmente el grupo nordoriental, quienes sufrieron pérdidas en la refinación de crudos de cosechas reducidas de Puerto Rico. No obstante, Puerto Rico nunca deja de embarcar toda su cuota de azúcar para consumo directo.

Originalmente, la propuesta de la industria azucarera nacional sugería una extensión de cinco años de toda la Ley Azucarera, con las modificaciones antes citadas. Se supuso, no obstante, que la prórroga de las cuotas extranjeras por un año nada más merecería el apoyo del Representante Cooley, lo que todavía puede suceder.

Otras secciones propuestas para la Ley enmendada y prorrogada le darían los déficits de Hawaii a las regiones remolachera nacional y cañera continental; los déficits de la región remolachera a otros productores nacionales; y los déficits de Filipinas a Cuba, y vice versa.

Una estipulación interesante es que "cuandoquiera que el Presidente observe y proclame que es necesario ajustar las cuotas existentes para cualquier país o países . . . a fin de proteger de otro modo los intereses nacionales, debe reducir por proclamación las cuotas existentes . . . en las cantidades que él determine que son necesarias y aconsejables para dar efecto y cumplir tal decisión".

Conocida como la "enmienda anti-Castro", esta estipulación cuenta con el firme apoyo de varias secciones del Departamento de Estado y de otros sectores. Le concedería al Presidente de los EE.UU. pleno poder de tomar severas medidas contra el jefe cubano si las circunstancias lo justificasen.

Si un Congreso demócrata llegase a concederle tal autoridad a un presidente republicano es otra cosa. Algunos demócratas prominentes dicen que esta enmienda es sumamente improbable. En vista de ello, los productores nacionales no están insistiendo en ella. Un prominente demócrata, no obstante, el Senador George Smathers de la Florida, se ha declarado en favor de una enmienda que le conceda al Secretario de Estado el poder de reducir la participación de un país extranjero en el mercado azucarero si ese país le niega el justo tratamiento a súbditos norteamericanos, a su comercio, su nevegación o su industria.

Los intereses nacionales distan mucho de estar unidos en su apoyo de estas enmiendas. No hay conformidad entre unos y otros, ni siquiera entre regiones. Ciertos segmentos de la industria de azúcar de remolacha, por ejemplo, no tienen interés alguno en aumentar la cuota remolachera. Otros, con tierras adicionales dedicadas al cultivo de remolacha, como en el Estado de Washington, están insistiendo en asignaciones para sus agricultores. En las recientes audiencias públicas sobre el cálculo de consumo ante el Departamento de Agricultura, el Senador Curtis de Nebraska, abogó por que se aumentasen las cuotas de pequeños productores en su estado.

La poderosa U. S. Beet Sugar Association, con socios en 22 estados, debe, como es natural, hacer presión sobre el caso de sus socios "expansionistas". Se supone que éstos estarían satisfechos con su aumento sugerido de 150,000 toneladas, lo que compensaría con creces las pérdidas anticipadas al ceder a Cuba su participación en los déficits de Puerto Rico.

Los productores de azúcar en Hawaii están bastante satisfechos con el presente estado de cosas, y quisieran la extensión de la Ley Azucarera por más de un año a fin de amparar su cosecha de larga duración. Desearían obtener un precio más alto por su azúcar, al igual que todos los demás productores. En este sentido, se encuentran cara a cara con un poderoso grupo de consumidores industriales—panaderos, reposteros, embotelladores y fabricantes de helados—por lo que no se anticipa cambio alguno en la Ley Azucarera que llegue a aumentar los ingresos de los productores de azúcar.

La industria azucarera de Hawaii es muy interesante. Tarde o temprano, parece que sus tierras serán utilizadas para el desarrollo de playas de recreo y construcción de viviendas. Su industria es indiscutiblemente la más extensamente mecanizada y científicamente operada en el mundo. Los jornales son muy altos. Todo ello, no obstante, está restringido por la unión de estibadores de ideas comunísticas bajo la dirección de Harry Bridges, quienes tienen la última palabra.

Los productores de Louisiana y la Florida no pueden ampliar su producción rápidamente, pero estiman que necesitarán campo para su futuro desarrollo. Puerto Rico viene siendo afectado por mal tiempo, problemas obreros y dificultades de mecanización a tal extremo que el problema de sobreproducción de años anteriores se tornó en el problema de los déficits de cuota.

Las regiones que más insisten en el aumento de sus cuotas, y que consideran que la presente situación en Cuba es una fortuna, son los otros países extranjeros, figurando en primer lugar entre ellos Filipinas, la República Dominicana, México, el Perú, y más recientemente el Brasil. Todos ellos cuentan con excesos de azúcar, y el mercado norteamericano, con un precio aproximadamente el doble del mercado mundial libre, es sumamente llamativo. Sus representantes en Washington han lanzado una enérgica campaña. Se espera que varios otros países dirijan su vista hacia el horizonte para observar codiciosamente el panorama azucaro en EE.UU.

El Dr. Urbano Zaffra, Ministro y Consejero de Filipinas, afirmó que un aumento en la cuota de Filipinas era "imperativo", y advirtió que su país no recibió aumento alguno en la Ley Azucarera de 1948 ni en la prórroga de 1956, cuando otros países extranjeros fueron beneficiados. El Dr. Zaffra llamó la atención a la declaración del Presidente Eisenhower hecha cuando aprobó los cambios de 1956:

". . . No se consideró factible recomendar un aumento en la cuota de Filipinas por

el momento. Yo creo, por lo tanto, que al preparar nuevas enmiendas cuando concluya la Ley actual, debe considerarse el punto de permitir que Filipinas participe en el aumento de consumo, tal como se establece ahora para otros países extranjeros en esta ley".

John A. O'Donnell, consejero general de la Philippine Sugar Association, recuerda que antes de la primera legislación azucarera de EE.UU. en 1934 Filipinas disfrutaba de una participación básica en el mercado azucarero de EE.UU. históricamente mucho más alta que la que tiene hoy. "Más del 15% del azúcar consumido en los EE.UU. solía venir de Filipinas," me dijo él. "Ahora es sólo un poco más de 10%. El sentido de equidad hacia un país amigo parece que dicta un aumento considerable sobre nuestra cuota actual de 980,000 toneladas".

La República Dominican presenta un caso lógico. El Ministro y Consejero, Marco Antonio de Pena, quisiera ver otras 400,000 toneladas agregadas a la participación de su país en el mercado de EE.UU. Recientemente, este diplomático sagaz estableció una oficina en Washington para promover la causa de su parte de la Española, donde se produjo azúcar por primera vez en el Hemisferio Occidental.

El Dr. de Pena no alega que es necesario ayudar a la industria azucarera dominicana para impedir el comunismo allí.

"No hay comunistas en la República Dominicana ahora ni los habrá, tanto si o no recibimos mayor participación en el mercado azucarero de EE.UU...," dijo él. Él explica que un país no comunista situado tan cerca de los Estados Unidos como está la República Dominicana y, por lo tanto, un abastecedor de azúcar seguro en un momento de crisis, debe ser alentado en la producción de un producto tan indispensable como el azúcar.

Otro entrante relativamente nuevo en el grupo de países que desean "llenar la azucarera" norteamericana es México, que ha cuadruplicado su producción de azúcar en menos de veinte años. Actualmente, México cuenta con un sobrante de 400,000 toneladas y estima que, como un buen cliente de EE.UU., más su posición geográfica, presenta un caso válido.

Oscar Chapman, ex Secretario del Interior, quien se ha mantenido al margen de la escena azucarera desde que vino a Washington con el Senador Costigan de Colorado, copatrocinador de la Ley Jones-Costigan, es su abogado. En 1956, el Sr. Champan dejó caer una bomba en las audiencias celebradas por el Congreso sobre la extensión de la Ley Azucarera con una fórmula estipulando cuotas extranjeras mucho mayores basadas en el comercio con EE.UU. México logró obtener un aumento considerable en su cuota, pero su apetito dista mucho de estar satisfecho.

El Sr. Chapman regresó de México recientemente, y se entiende que tiene nuevas propuestas para ayudar a México a costas de Cuba.

Brasil y Perú insistirán en mayores cuotas. Siguiendo la norma de otros países cuyos azúcares pagan plenos derechos, han tenido cuidado en abstenerse de sugerir de modo alguno que se debe poner coto a los abastecedores de azúcar nacionales. Su argumento básico es que no hay justificación para que Cuba reciba la mayor participación en el mercado azucarero, especialmente ahora que el gobierno cubano ha asumido una actitud decididamente antiamericana. Perú tiene una larga historia de producción azucarera. Brasil se ha convertido en un importante productor solamente durante los últimos diez años, pero su producción anual asciende ahora a bastante más de tres millones de toneladas. Viéndose excluído del mercado azucarero norteamericano, Brasil alega que su comercio con los Estados Unidos sobrepasa el de Cuba, y que su exclusión de dicho mercado es injusta.

Estos países hispanoamericanos infieren que la ayuda que pretenden es esencial para la solidaridad hemisférica que los Estados Unidos vienen predicando desde hace años. Ellos no pueden comprender como Cuba puede burlarse del Tío Sam tan descaradamente y salir ilesa.

Si o no Castro es miembro del partido comunista, no viene al caso. Su programa a la fecha ha seguido las normas de dicho partido con tanta regularidad que lo mismo da que sea comunista que no lo sea.

Indistintamente de lo que suceda con la legislación azucarera, los observadores en Washington están seguros de que será una batalla memorable. Los jefes de la industria generalmente confían en que las deliberaciones se puedan llevar a cabo sin rencor, tal como sucedió cuando se aprobó la Ley Azucarera de 1937, en cuya ocasión reinaron los acaloramientos y los insultos verbales. El Presidente Roosevelt se quejó de la "alianza ímpia" que dijo había sido formada por ciertos intereses, y toda la industria azucarera fue mal mirada por el público consumidor.

Los jefes de la industria nacional también desean una decisión rápida, lo que tal vez no ocurra. Algunos de los legisladores con quien hablé opinan que como la ley actual todavía tiene un año de vigencia, tal vez sea más acertado aplazar cualquier decisión hasta el último mes de la Sesión, a fin de poder observar los acontecimientos mundiales más detenidamente. Pero, si la decisión fuese así demorada, el forcejeo entre los grupos competidores sería espantoso.

A principios de diciembre, Dudley Smith, vicepresidente de la Asociación de Productores de Azúcar de Puerto Rico, me dijo que la única cosa positiva en cuanto a la situación era la "confusión total" en que se encontraba.

Durante este período de negociación encaminado a lo que se espera equivalga a un frente unido ante el Congreso, muchos de los representantes de la industria prefieren mantenerse en silencio por temor a comprometer sus posiciones. Ellos están tratando de consolidar sus fuerzas y consultando frecuentemente a Lawrence Myers, director de la División Azucarera del Departamento de Agricultura, quien es ensalzado en todas partes por su sinceridad e imparcialidad.

Existe un temor cada día más intenso entre los productores nacionales, especialmente entre grandes operadores y en Hawaii, Puerto Rico y la Florida, que se trate de reducir las escalas de pagos en cumplimiento de la Ley. Tal esfuerzo fue probado y fracasó el año pasado, pero un Congreso económicamente consciente tal vez haga un nuevo esfuerzo ya sea mediante enmiendas a la Ley Azucarera o la limitación de las apropiaciones agrícolas en general. Algunos creen que existe un peligro inminente y ofrecen esto como una razón para una simple extensión.

En resumen, no obstante lo bien dispuesto que uno se sienta hacia el pueblo cubano, es un hecho indiscutible que el advenimiento de Castro resultará ser a la larga un enorme golpe para Cuba. Si la cuota azucarera de Cuba—su arteria económica—será reducida ahora, no está claro. Pero la presión está aumentando. Otros países hispanoamericanos amigos están en posición y dispuestos a suministrar este producto vital, o podrán hacerlo en corto plazo. La preferencia arancelaria concedida a Cuba y su enorme cuota azucarera serán afectadas en años venideros.

Es un dicho muy repetido, pero es, no obstante, un hecho que los problemas azucareros de EE.UU. son muy graves. Las medidas precipitadas y mal pensadas serían muy perjudiciales para el país y para el mundo. Si en ocasión alguna se consideró necesaria la habilidad política y económica en materia legislativa, ahora es el momento de aplicarla al estudio del programa azucarero.

El bienestar y salud de millones de personas están en peligro, y quizá hasta la paz del mundo.

■

Secadora de Azúcar para Bolivia

La Standard Steel Corporation ha embarcado al Central La Bélgica de Santa Cruz, Bolivia, una secadora Standard Hersey giratoria de cinco pies por veintiseis pies y una enfriadora giratoria del mismo tamaño como parte de su programa de expansión cuyo costo se calcula en dos y medio ($2.5) millones de dólares. Los propietarios de este central, la Gasser & Cía., tienen en mente aumentar su capacidad de molienda de 350 a 1,400 toneladas de caña diarias. El Sr. Gasser estuvo en Nueva York en febrero de este año para tramitar la compra de nuevo equipo con el fin de ensanchar su fábrica y refinería de azúcar mediante un préstamo de más de dos millones de dólares tramitado a través del Development Loan Fund en Washington, D. C.

Nuevo Uso de Suproductos en Taiwan

Planta Behr para Tabla de Bagazo en Construcción

Por el Dr. Oswald Wyss

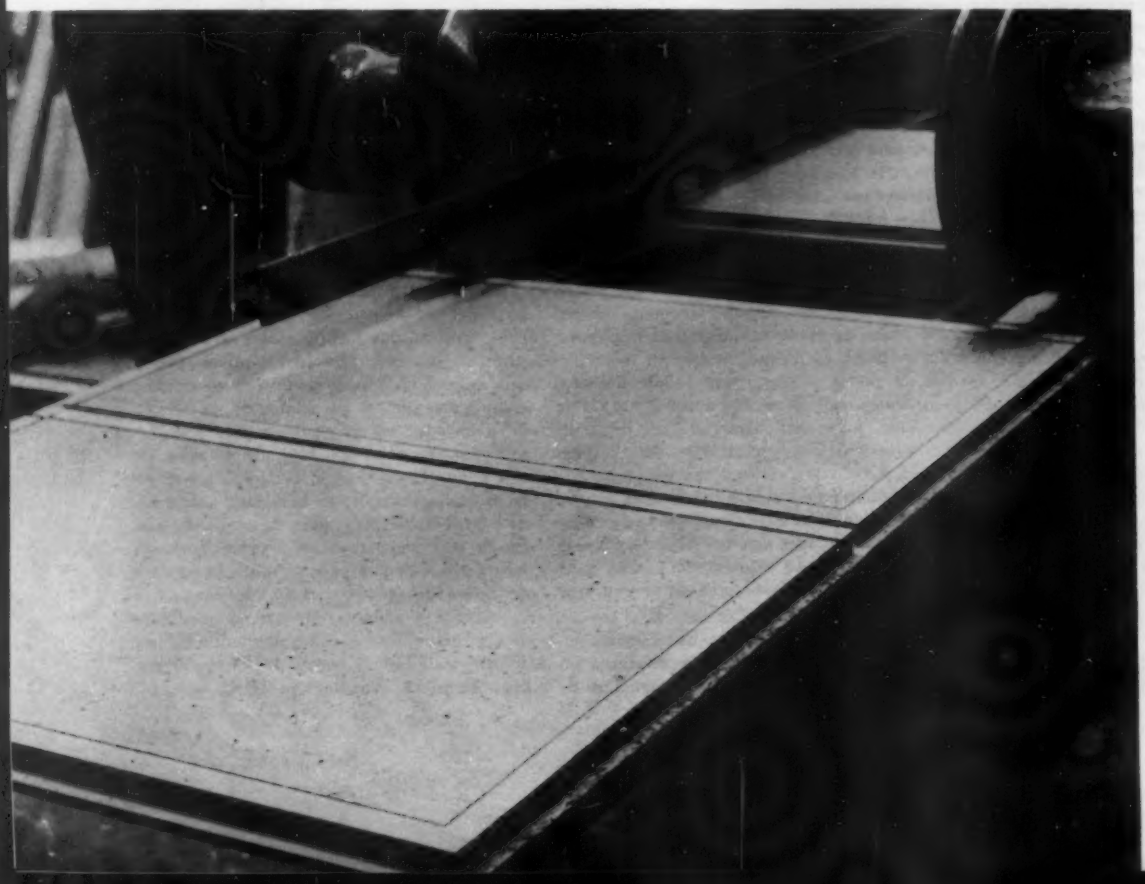
En Taiwan (Formosa) se está terminando la construcción de una nueva fábrica de tabla de partículas de bagazo con una capacidad de 55 toneladas diarias de tabla de tres cuartos de pulgada terminada, cuya planta será operada por la Taiwan Sugar Corporation en Koahsiung. La planta fue ordenada por el Central Trust de la China Nacionalista tras un detenido estudio de los aspectos económicos y físicos del proyecto, como las posibilidades de venta, valor potencial del bagazo disponible, costos locales de producción, capacidad fabril, y otros factores. Entre varias licitaciones, el contrato le fue concedido a la Behr-Board (Sistema Himmelheber) a base de una oferta presentada por Becker & van Hullen, Krefeld (Alemania) como contratistas generales, amparando la construcción de toda la planta. Las especificaciones fueron examinadas por la Taiwan Sugar Corporation, la I. G. White Engineering Company de Nueva York, consultores del Gobierno de Taihoku, y por la U. S. International Cooperation Administration. El pedido fue colocado en enero de 1959, y se espera que la planta comience a trabajar durante 1960.

Los ensayos de producción en plena escala utilizando bagazo de Taiwan en plantas de tabla Behr demostraron que la fibra de bagazo representa una materia prima excelente para la producción de tabla de alta calidad. Las densidades, estabilidad dimensional, características superficiales, resistencia a la tensión, propiedades de poder ser trabajada a máquina, flexión y cohesión interna son equivalentes a las de tabla hecha de virutas de madera; el color, no obstante, es más pardo-grisáceo. La tabla Behr de bagazo se puede trabajar con maquinaria de ebanistería ordinaria, como ranurar, perforar, lijar, etc. Esta tabla se puede usar en trabajos de construcción para divisiones, puertas, contrapisos y tejados. También se puede usar para diversos fines en la fabricación de muebles, interiores de buques, etc.

El diagrama inserto ilustra la operación del proceso. Durante la temporada de molienda, la fibra de bagazo se embala y se almacena en los diversos centrales azucareros operados por la Taiwan Sugar Corporation. Cuando sale de los molinos, el bagazo contiene el 100% de humedad base fibra completamente seca. En el almacén, el contenido de humedad se reduce al 27% más o menos, según el período de tiempo que el bagazo permanece en el almacén, lo que reduce la cantidad de calor necesaria para el secado en el proceso de elaboración, e impide la fermentación causada por el azúcar residual en el bagazo.

Las balas o fardos de bagazo se envían a una abridora o desintegradora de balas, después de lo cual la fibra suelta pasa por un detector de metal, un sistema de tamices, separadores neumáticos, molinos, cribas y secadoras especiales. Durante esta etapa del proceso, el parénquima es extraído mecánicamente en forma de polvo.

El contenido de humedad se reduce al 5% en las secadoras especiales. La fibra seca se pesa continua y automáticamente y se envía a una mezcladora regulada por un mecanismo de pesar continuo. En la operación o regulación de la mezcladora se requiere bastante exactitud para reducir el



Trabajando la tabla producida por el proceso Behr con maquinaria de ebanistería ordinaria.

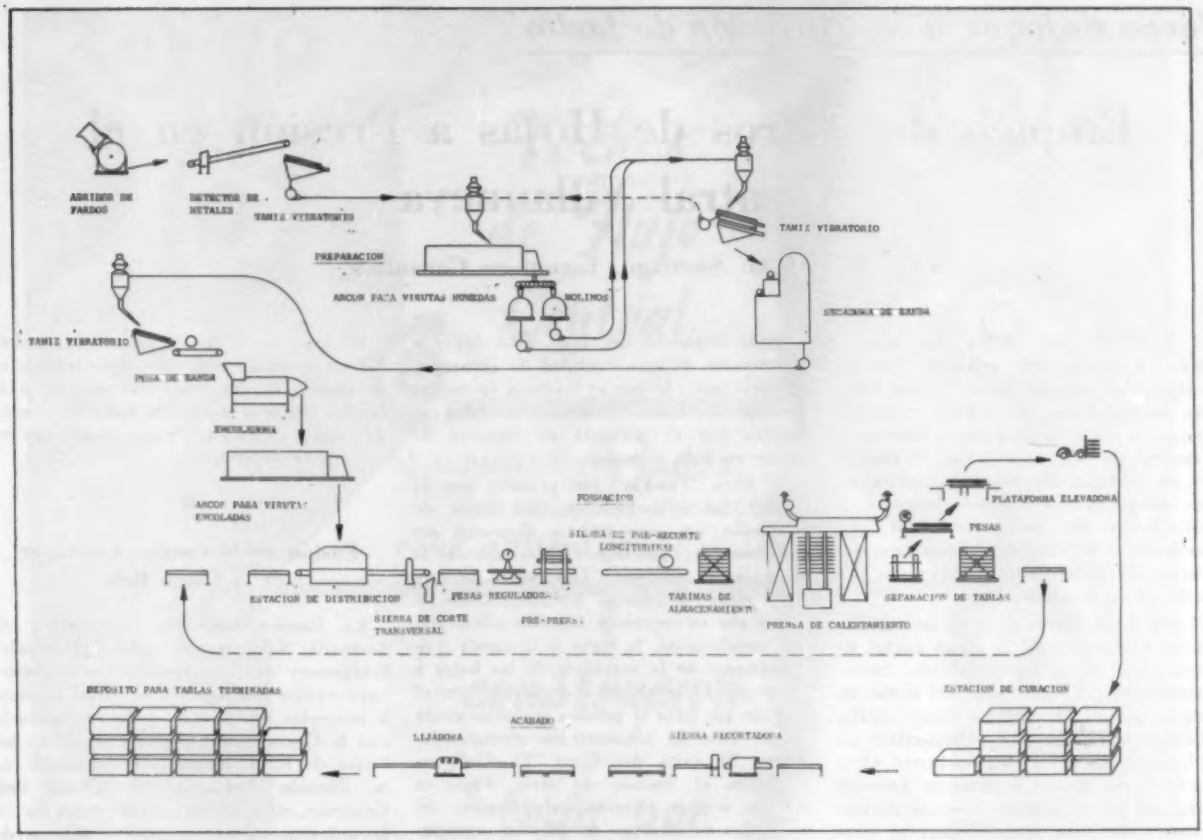


Diagrama esquemático del proceso Behr para la manufactura de tabla de partículas de bagazo instalado para la Taiwan Sugar Company en Kaohsiung (Formosa)

consumo de cola y producir una mezcla absolutamente uniforme. La mezcla de bagazo y cola se envía a arcones, de donde es alimentada continuamente a las maquinas distribuidores y formadoras que funcionan automática y continuamente. La construcción especial de estas máquinas les permite tender un colchón uniforme, lo que evita variaciones en la densidad de la tabla terminada, puesto que cualquier variedad de densidad daría lugar a combaduras y deformaciones de la tabla terminada expuesta a cambios de temperatura y humedad.

Las plantas de tabla Behr pueden producir tabla de una o de tres capas, y por un efecto de tendido especial, distribuir las partículas más finas en la superficie. Esto produce una superficie excepcional, que después de lijarla, se presta para ser directamente enchapada sin atravesar las vetas.

Después, el colchón o lámina se corta a la medida del largo deseado por una sierra de corte transversal movible, y luego se pesa para fines fabriles. Entonces se puede precomprimir y prerecortar, después de lo cual recibe el tratamiento al calor para intensificar la densidad, secar la cola y endurecer la tabla.

Las tarimas o tablillas de metal donde se

En la producción de tabla de bagazo proveniente de Taiwan por el proceso Behr, el primer paso fue analizar la materia prima antes de que el sistema fuese aprobado por la agencia del Gobierno Nacionalista de la China. La ilustración muestra una sierra movible de corte transversal cortando las láminas de fibra de bagazo a la medida predeterminada.

Nuevo Enfoque a la Filtración de Lodos

Empleo de Filtros de Hojas a Presión en el Central Villanueva

Por J. M. Santiago, Ingeniero Consultor

En la edición de octubre de *Sugar y Azúcar* apareció un artículo con la descripción general del nuevo Central Villanueva en Honduras. Un detalle extraordinario, entre otros, de esta nueva fábrica es el empleo de filtros de hojas a presión para la filtración de lodos o cachaza en lugar de los filtros usuales giratorios al vacío. Se le ha pedido al autor una descripción más detallada de esta estación, en vista del gran interés despertado por este desvío de lo convencional.

El empleo de filtros al vacío se consideraba un hecho durante la etapa inicial de planeamiento de la nueva fábrica. Subsiguientemente llegó a manos del autor un informe sobre el trabajo que estaba realizando la Suchar Sales Corporation en la filtración de lodos con su nuevo filtro "Fas-Flo", por lo que se hizo un detenido estudio del nuevo proceso antes de decidir la compra de estos aparatos para el Central Villanueva.

Durante las discusiones iniciales se mencionó el empleo de filtros prensas de hace una generación. Conestos filtros, los lodos se filtraban positivamente, los jugos brillantes se enviaban directamente a los evaporadores, y los lodos lavados se diluían en un arcón, de donde eran llevados a los campos. El alto costo de la mano de obra que implicaba el empleo de los filtros de placas y cuadros en este servicio, más el alto costo de la reposición de paños de filtro, hizo que al fin estos aparatos fuesen substituídos con filtros giratorios al vacío en la mayoría de fábricas de azúcar del mundo. Estos filtros requerían muy poco trabajo e implicaban bajos costos de conservación, pero introdujeron dificultades de otra índole. Todo el jugo filtrado no podía ser enviado a los evaporadores porque salía demasiado sucio; en efecto, la mayoría de fábricas encontró que no podía utilizar ninguno de estos filtrados y tenía que devolverlos todos al sistema de clarificación.

Esta práctica de recirculación creó la necesidad inmediate de aumentar 20 a 25% la capacidad de la estación de clarificación. Además, como los filtros al vacío no eliminaban las partículas de impureza finas, éstas eran devueltas al sistema de clarificación, lo que reducía severamente su eficacia. Sucedía que estas partículas finas no se asentaban. Por otra parte, la prolongada retención del jugo daba lugar a la inversión de gran cantidad de azúcar en el clarificador, lo que se traducía en menos rendimiento. Estas dificultades son bien conocidas por el personal de fábricas de azúcar en todo el mundo.

El filtro "Fas-Flo" fue probado por la Suchar Sales Corporation con lodos de clarifición, en cuyo trabajo demostró ser perfectamente práctico y adaptable a la filtración de cachaza. Las hojas de este filtro están dispuestas horizontalmente y filtran por su superficie superior solamente. Por consiguiente, la torta se acumula uniformemente en la superficie de las hojas y no se puede desalojar o desprender en el caso de que baje la presión repentinamente o que cese la alimentación momentariamente. El éxito del filtro "Fas-Flo", en oposición al fracaso de otros filtros a presión, se debe al método de limpieza. Si los paños de filtro no se limpian perfectamente al cabo de cada ciclo de trabajo, pronto se tupen y nada puede pasar por ellos. Los filtros prensas tienen el mismo defecto, y los peños tienen que ser cambiados frecuentemente. Las paños del filtro "Fas-Flo" se limpian perfectamente con chorros verticales de agua que oscilan sobre las superficies. Un juego de paños duró toda la campaña en el Central Villanueva. Un solo hombre puede manejar toda una batería de filtros "Fas-Flo", la que también se puede operar automáticamente.

En la fábrica Villanueva, el lodo del clarificador es bombeado del depósito a los filtros "Fas-Flo". En el tanque de depósito se puede agregar cal, en el caso de que la corrección de pH se crea conveniente. No se necesitan auxiliares filtrantes. No hay que agregar bagacillo. El jugo del filtro F-F sale brillantemente claro y se envía directamente al tanque de abasto del evaporador. Al terminar el ciclo, el filtro se descarga y el filtrado pasa inmediatamente al otro filtro. El lodo que queda en el filtro vacío se lava con aire comprimido y con vapor, y luego se descarga en la cloaca. El tiempo invertido en las operaciones de carga, descarga, lavado y limpieza es alrededor de treinta minutos. Como este es un sistema intermitente, es conveniente tener más de un filtro. Los ciclos de filtración sobrepasan unos a otros, lo que mantiene la corriente de lodo del clarificador a un ritmo constante.

El lodo no se puede retirar del filtro F-F en forma de torta seca, toda vez que es desalojado de las hojas con agua. En la fábrica Villanueva se deja pasar al sistema de riego y es aplicado a los campos por un sistema de aspersion.

■

Fusión de la Carrier Conveyor y la Chain Belt

La Carrier Conveyor Corporation de Louisville, Kentucky, uno de los principales fabricantes de transportadores vibratorios, cuyo equipo se encuentra en varias fábricas y refinerías de azúcar, se ha amalgamado con la Chain Belt Company, según un informe de E. H. Rhodes, vicepresidente de la División Industrial de Chain Belt Company, cuya última es bien conocida en la industria azucarera por su equipo de manejo de materiales a granel, cadenas para ruedas dentadas, maquinaria para transmisión de fuerza y otros productos.

■

Planta Behr

(Viene de la página 55)

tienden las láminas son devueltas automáticamente a la estación de formación mientras se recorta la tabla en bruto, se lija y se seca para disponerla para el embarque.

A la fecha se encuentran 30 plantas de tabla Behr en operación en distintas partes del mundo y varias otras en vías de construcción. Muchas de estas plantas trabajan con virutas de madera, pero el principio es igual al empleado en la planta de tabla de bagazo en Taiwan. Por lo general se considera que una planta con una capacidad diaria de 50 a 60 toneladas es económicamente práctica, aunque en ciertas condiciones especiales, plantas de 25 a 30 toneladas diarias pueden resultar igualmente prácticas. Se pueden montar plantas para una sola línea de producción con capacidades hasta 100 toneladas diarias. El sistema Behr no presenta problemas con aguas residuales, puesto que se trata de un preceso en seco que requiere muy poca agua.

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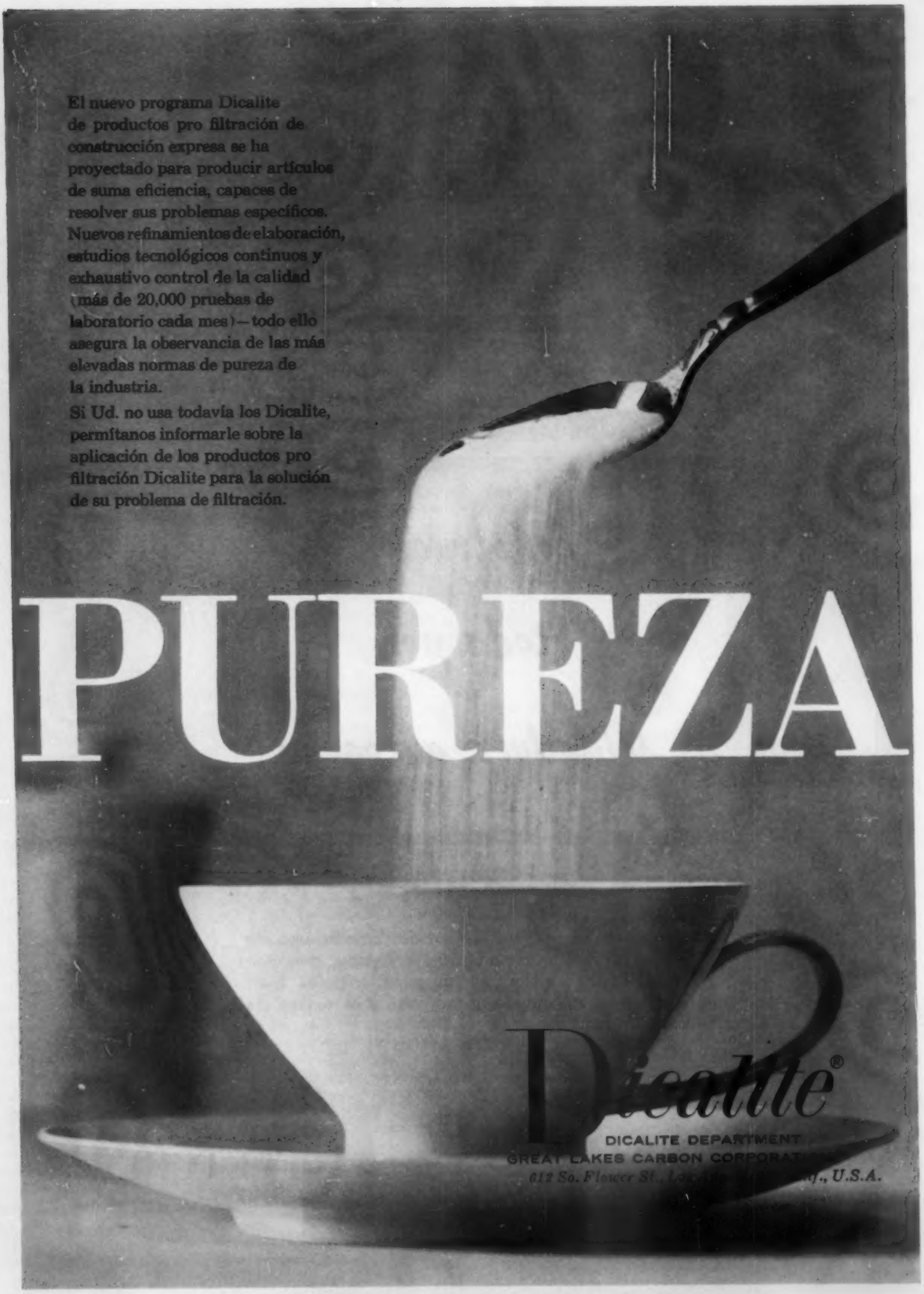
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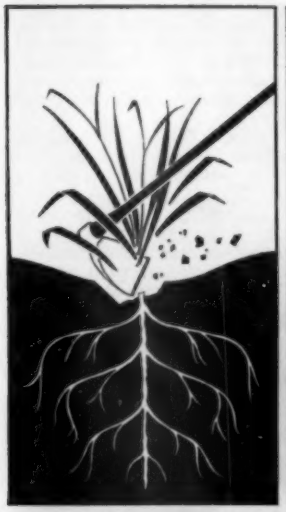

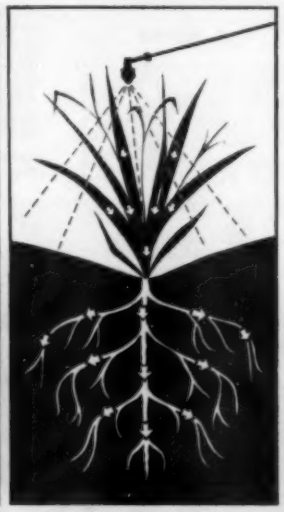

"La azada o el machete dejan las raíces fuertes y lozanas y las malezas retoñan en poco tiempo, pero los Matamalezas Químicos penetran por las hojas llegando hasta las raíces más profundas, matando toda la planta. Una sola aplicación es suficiente."

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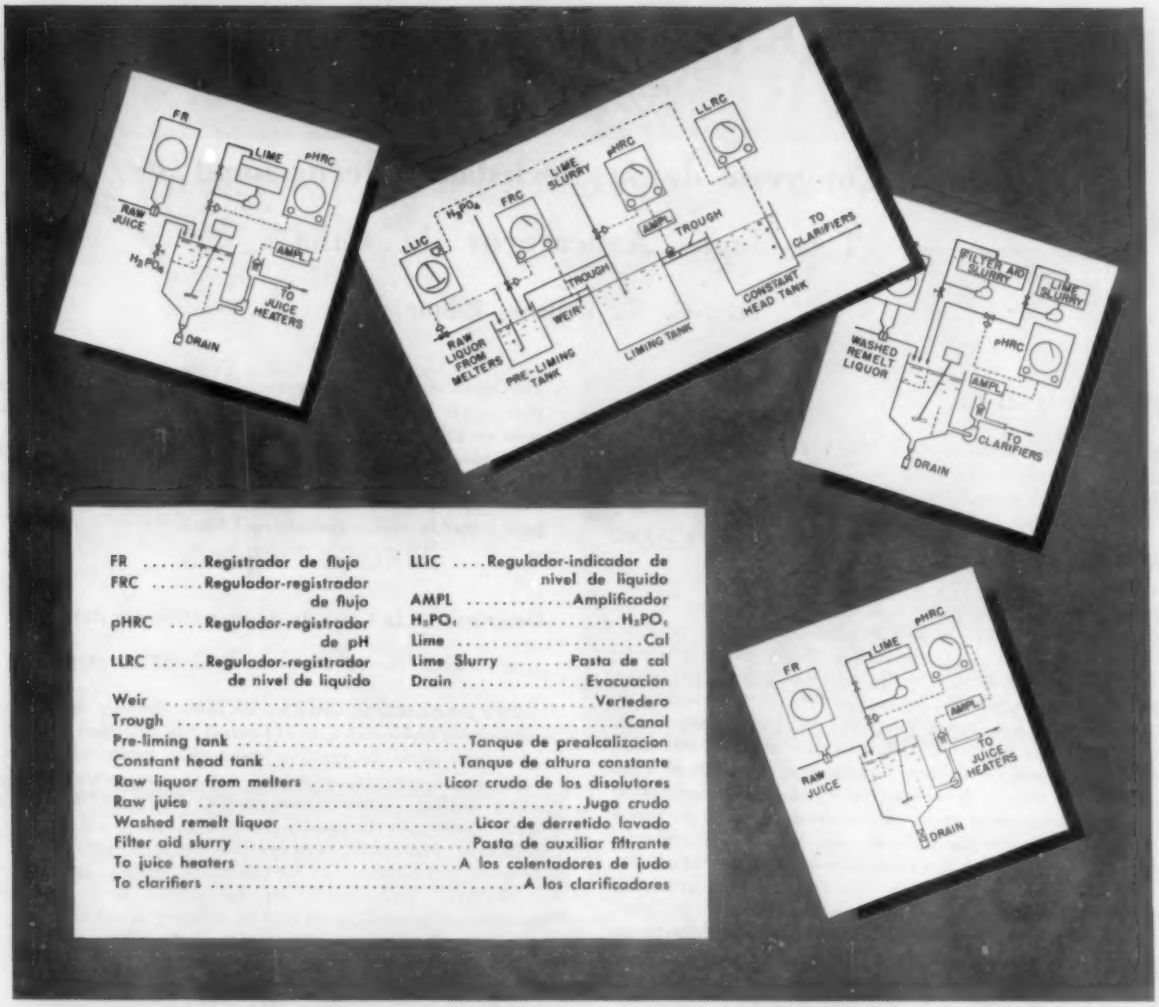

FR	Registrador de flujo	LLIC	Regulador-indicador de nivel de liquido
FRC	Regulador-registrador de flujo	AMPL	Amplificador
pHRC	Regulador-registrador de pH	H_3PO_4	H_3PO_4
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EXTRACTOS—Presentados

en el

Décimo Congreso de la Sociedad Internacional de Tecnólogos Azucareros de Caña

Dr. O. W. Willcox, Editor

Agronomía

Efecto de la Hojarasca de Caña y Legumbres en los Rendimientos de Caña y de Azúcar y en la Materia Orgánica en Louisiana

L. P. HEBERT y L. G. DAVIDSON, *Décimo Congeso de la SITAC en Hawaii*

Resumen de los rendimientos de caña y de azúcar en los casos de caña de planta y cañas de primer y segundo retoños:

(1) En tierras ligeras margolimosas moderadamente avenadas, después de 26 años, los rendimientos de caña y de azúcar fueron más altos cuando la hojarasca de caña y cosechas de sojo fueron devueltas al suelo, y más bajos cuando se eliminaron todos los residuous vegetales. Las cosechas de soja soterradas equivalieron a menos de 40 libras de nitrógeno con respecto a los rendimientos de caña y de azúcar, pero redujeron el contenido de materia orgánica en el suelo. La hojarasca de caña no surtió efecto en el contenido de materia orgánica, pero cuando se removió o se quemó, redujo los rendimientos de caña y de azúcar.

(2) En tierras margolimosas inadecuadamente avenadas, después de 17 años, los rendimientos aumentaron un poco cuando se quemó la hojarasca de caña, cuando se soterraron cosechas de soja, y cuando se agregó nitrógeno a la cosecha de caña de planta. *M. indica* sin nitrógeno o 5 toneladas de bagazo por acre en cosechas de soja redujeron los rendimientos de caña y de azúcar. Soterrando las cosechas de soja, se aumentó el contenido de materia orgánica en el suelo.

(3) En tierras pesadas limoarcillosas inadecuadamente avenadas, ningún tratamiento, aparte del nitrógeno, afecto los rendimientos de caña de azúcar después de 17 años. El contenido de materia orgánica en el suelo fue más alto cuando se quemó la hojarasca de caña. Las cosechas de soja no produjeron efecto en el contenido de materia orgánica en el suelo.

■

Recolección Mecánica de "Cosechas Largas" de Caña

R. A. DUNCAN, *Décimo Congreso de la SITAC en Hawaii.*

La industria azucarera de Hawaii ha acumulado gran experiencia en la recolección mecánica de "cosechas largas" (de 18 meses) de caña recostada. El sistema corriente a base de rastrillos de empuje y de arpeos fue evolucionado durante el corto período de desarrollo a un costo relativamente bajo. Estas herramientas presentan ciertos problemas bien conocidos, pero tienen la ventaja de ser sencillas, implican un costo inicial razonable, son fáciles de conservar en buenas condiciones funcionales, y requieron poca atención.

Se han probado varias ideas y se ha establecido un programa de estudios para determinar la posibilidad de desarrollar un sistema de recolección verdaderamente eficiente y económico. Las ideas o invenciones puestas a prueba incluyen máquinas para cortar la caña solamente, máquinas para cortar y apilar la caña en hileras, y máquinas para cortar y cargar la caña. Los resultados de estos aparatos han tenido escasa aceptación. Hasta el presente se han perfeccionado tres máquinas que se pueden considerar prácticas, una para cortar caña solamente y dos para cortar la caña y apilarla en hileras.

■

Deterioro de la Caña de Azúcar Después del Corte

A. W. TURNER, *Décimo Congreso de la SITAC en Hawaii.*

Para determinar el deterioro de cañas después del corte bajo condiciones ambientales, en el Central San Cristóbal (México) se inició una serie de ensayos con cañas comreciales para determinar las pérdidas ocurridas durante los meses de enero a mayo de 1958. Cada ensayo consistió en un análisis diario de cañas desde un día hasta 23 días después del corte. Los resultados, expresados como el por ciento de pérdida de peso, de Brix, de rendimiento y de pureza, se ilustran gráficamente y se discuten. También se dan los valores de precipitación y temperatura promedios durante el curso de los ensayos.

■

Propagación

Estudios Sobre las Características Florales y Reproductoras de Ciertas Variedades de Caña de Azúcar

U. VOJAYALAKSHMI y J. T. RAO, *Décimo Congreso de la SITAC en Hawaii.*

En el curso de estos estudios se procuró registrar las características florales o florescentes de veinte variedades de cañas híbridas cultivadas en varias parte de la India y señalar aquellas que pueden ser útiles para los propagadores de caña en sus diagnosis, para las cuales se ha preparado una clave. Se observó que el largo de los pedúnculos, las espiguillas y los filamentos córneos acusan escasa variación entre la misma variedad, pero que acusan máxima variación entre distintas variedades. La presencia o ausencia de la IV gluma es una característica importante en la diferenciación de variedades. Las características útiles en la epidermis de las hojas son el índice estomático y la presencia o ausencia de dentículos.

Se estudiaron tales características como la época de florecimiento, momento en que se abren las espiguillas, la condición de las anteras, y la fertilidad polínica en diversas variedades de caña. También se discutieron las características reproductoras

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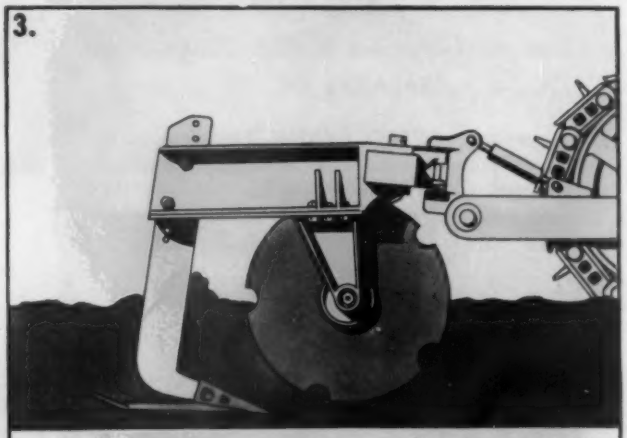

Las cuchillas giratorias cortan a través de la cepa vieja y las puntas y aletas del subsolador levantan el suelo.

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de estas variedades, y se señalan las más importantes bajo el punto de vista del propagador de cañas.

■

Observaciones Preliminares Sobre la Fertilidad y Organos Esenciales en las Flechas de Ciertas Variedades de Caña Bajo Tratamientos Fotoperiódicos

J. T. RAO y KRISHNA KUMARI, *Décimo Congreso de la SITAC en Hawaii.*

Exponiendo los tallos de caña a dos o cuatro horas adicionales de luz sobre lo normal, y siguiendo esto con cuatro horas adicionales de obscuridad durante cierto período, fue posible inducir el florecimiento temprano en variedades de caña tardías y vice versa y lograr la disponibilidad de flechas durante todo el año.

Durante el primer año de pruebas se observó que el rendimiento de polen y su fertilidad fueron más bajos en las plantas tratadas. Este fue el caso durante la época de la florescencia, y los cruces efectuados por el tratamiento fotoperiódico de las flechas produjeron muy pocas germinaciones.

Se inició una serie de minuciosos estudios para determinar la condición de las anteras, la disponibilidad y fertilidad de polen, y la receptividad de las estigmas en un número de variedades de caña cuyas flechas habían sido expuestas al tratamiento. En la mayoría de variedades, las flechas tratadas acusaron menos anteras abiertas, con los granos de polen generalmente mal desarrollados. El polen se encontraba en forma aglutinada y pegado a las paredes de los poros de las anteras, lo que impedía su desprendimiento. En unas cuantas variedades en que se pudo recoger algún polen, su fertilidad, determinada por el método de yodo, se encontró que era baja. En ciertas variedades se observaron varias anormalidades en los estambres. Los tres estambres en la variedad Co. 779, fueron reducidos a estaminodios.

Se probó el empleo de variedades pistiladas progenitoras seguras (en vista de la esterilidad masculina) y se efectuaron varios cruces con variedades estaminíferas probadas. En ciertas variedades no se obtuvieron germinaciones, ni siquiera cuando la pelusa se sembró en condiciones normales. Se anticipaba que los cruces fuesen buenos germinadores, en vista del alto grado de fertilidad del polen en las variedades estaminíferas. Al parecer, el pistilo también había perdido su fertilidad.

■

Patología

Aumento en Rendimiento de Cañas Tratadas Contra la Enfermedad del Raquitismo en Louisiana

R. J. STEIB y S. J. P. CHILTON, *Décimo Congreso de la SITAC en Hawaii*

El tratamiento de la caña contra la enfermedad del raquitismo en Louisiana se hace con aire caliente, porque en pruebas de invernadero y de germinación en el campo se encontró que este método es más seguro que el método de agua caliente. La caña se trata, en escala comercial, en un horno eléctrico automáticamente regulado, con una capacidad de 2,200 libras. Este horno fue extensamente probado antes de ponerlo a disposición de la industria azucarera en 1955. Para comprobar más aún su eficacia, se comprobó el funcionamiento y eficiencia térmica de unos 70 hornos actualmente en uso en el estado de Louisiana. La enfermedad es eliminada a una temperatura de entrada de 58° o 59° C, de acuerdo con la variedad tratada. El horno alcanza una temperatura de 54° C dentro de unas tres horas después de comenzar el tratamiento de ocho horas de duración.

Un examen de todas las siembras de cañas tratadas en hornos eléctricos durante los últimos tres años reveló que estaban densamente pobladas y que se encontraban relativamente libres de la enfermedad, siempre que se tomaron las precauciones necesarias durante el período de tratamiento. En siembras de caña de planta tomada de semillas tratadas se observó una infección de 4.5 por ciento, la que aumentó a 19.6 por ciento después del primer corte y a 17.3 por ciento después del primer corte de retoño. Se supone que la infección ocurrió porque las cuchillas superiores e inferiores de la máquina recolectora se habían infectado al venir en contacto con los pocos tallos enfermos observados en las siembras tratadas. El aumento de infección fue 4.3 por 1 en caña de planta y 3.8 por 1 en caña de primer retoño.

■

Nota Sobre la Secuencia de Inflorescencia de Variedades de Caña Saccharum spontaneum

R. R. PANJE y K. SRINIVASAN, *Décimo Congreso de la SITAC en Hawaii.*

Unas 200 variedades de caña *Saccharum spontaneum* recogidas en varias partes de la India y reproducidas de posturas o plantones en Coimbatore acusaron bastante regularidad en sus épocas de florecimiento respectivas. En 124 de ellas, el desvío promedio durante seis años fue menos de 10 días, y en 189 fue menos de 20 días, aunque la época de la inflorescencia generalmente duró siete meses.

En ciertos años, el florecimiento se demoró en una importante mayoría de variedades, mientras que en otros años, la mayoría de las variedades floreció más temprano. Estos desvíos de la época promedia parece que tienen relación con la época y cantidad de lluvia.

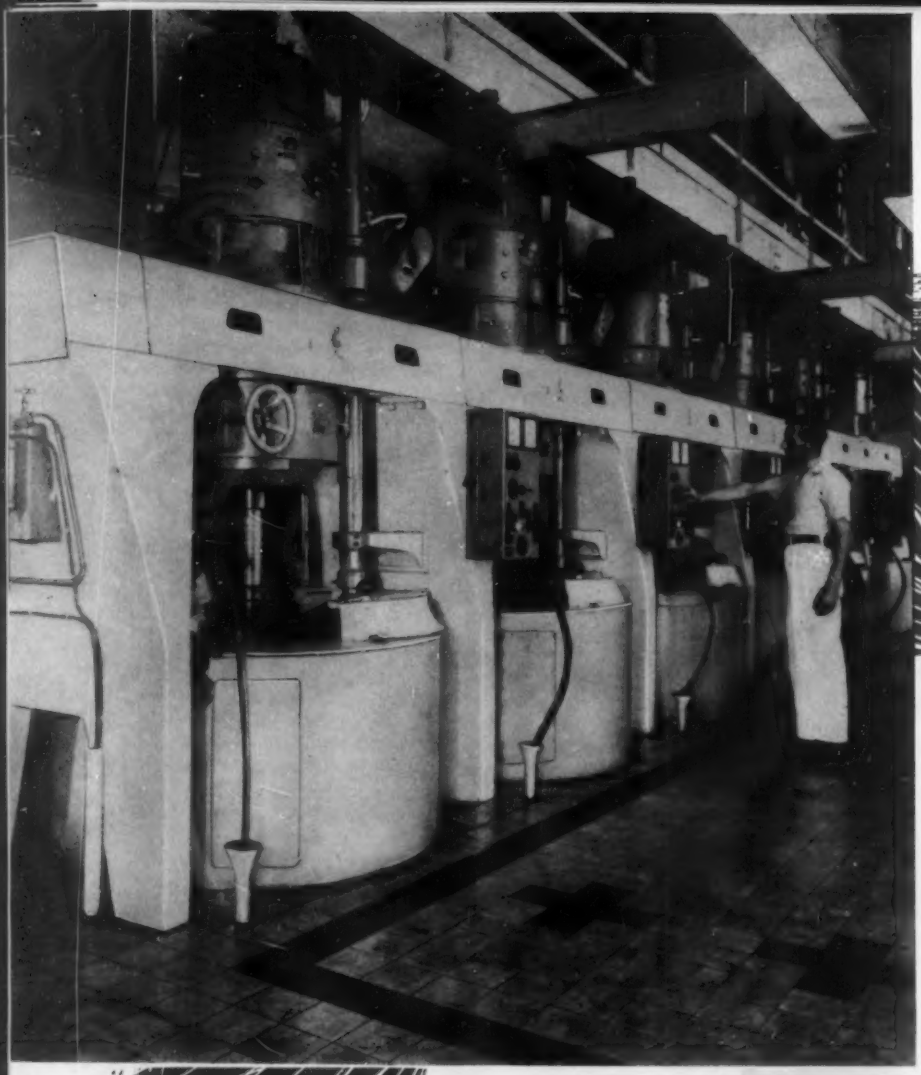
Las flechas de 77 variedades fueron examinadas mensualmente para determinar el momento en que se inició la formación de flores. Se observó que tal formación no ocurre simultáneamente en todas las variedades, sino que sigue aproximadamente la misma secuencia que la florescencia y ocurre uno o dos meses antes del brote de la primera hoja corta en cada variedad. Al parecer, tales variedades son sensibles a distintos fotoperíodos y la formación inicial de flores sigue el comienzo de los fotoperíodos en el orden del calendario. Las diferencias secundarias en la secuencia floral probablemente sean el resultado de las diferencias entre variedades en la velocidad de desarrollo y alargamiento de los ejes florales.

■

Estudios Sobre el Recobro de Plantones de Caña de Azúcar de la Enfermedad del Mosaico

Y. E. AZAB, P. J. MILLS y S. J. P. CHILTON, *Décimo Congreso de la SITAC en Hawaii*

Se hizo un estudio de tres años del recobro de plantones de cruces de caña de azúcar de la infección del virus del mosaico. Los plantones fueron inoculados en macetas en el invernadero cuando tenían de 4 a 8 pulgadas de alto; los que acusaron la infección del mosaico fueron transplantados en el campo, donde se observó su recobro, tanto en la cosecha de caña de planta como en la primera cosecha de retoño. En una serie de ensayos, el 19 por ciento de 1470 plantones recobraron de la enfermedad del mosaico; cien de estos fueron plantados nuevamente, y no acusaron síntoma alguno. Al inocularlos nuevamente, algunos resultaron inmunes al mosaico, otros fueron infectados y luego recobraron, y otros fueron infectados y no recobraron. En otra serie de experimentos, 3201 plantones de seis cruces, infectados de mosaico, fueron transplantados en el campo, donde se observaron la cosecha de caña de planta y la primera cosecha de retoño, y se encontró que el 8.7 por ciento había recobrado del mosaico en el primer caso y el 24.5 por ciento en el segundo caso.



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Futuro Azucarero en Puerto Rico

El estado actual y las perspectivas futuras de la industria azucarera de Puerto Rico fueron esbozados por Manuel A. del Valle durante el almuerzo celebrado por el Club Azucarero de Nuevo York el 16 de diciembre de 1959. El Sr. del Valle está perfectamente capacitado para ofrecer un resumen de la situación en Puerto Rico, siendo presidente de la Asociación de Productores de Azúcar de Puerto Rico, y presidente de la junta de directores de la Fajardo-Eastern Sugar Associates, quien es generalmente roconocido como la primera autoridad en los problemas azucareros de la Isla. Mientras que otras regiones nacionales productores de azúcar estaban concentrando sus esfuerzos en la mejora de variedades de caña, en maquinaria agrícola para aumentar la producción, en aumentar el rendimiento de la fuerza de brazos, y en mejorar las prácticas agrícolas, dijo el Sr. del Valle, una serie de razones impidió que Puerto Rico pudiese mejorar estos factores esenciales en su industria azucarera. Nuestros centrales azucareros han alcanzado un alto grado de eficiencia y tienen la capacidad necesaria para hacer frente a cualquier exigencia en el futuro. La parte agrícola ha sufrido, no obstante.

A partir del año 1953 se organizó un magnífico programa con la colaboración del Gobierno de Puerto Rico, la Universidad de Puerto Rico, el Departamento de Agricultura de EE.UU. y la propia industria azucarera, desde luego, para desarrollar mejores variedades de caña. Este programa ha progresado satisfactoriamente y debiera producir ciertos resultados dentro de uno o dos años.

El desempleo en Puerto Rico ha sido aliviado por el enérgico programa de industrialización iniciado por la Comunidad y por la migración de trabajadores al continente norteamericano, de modo que ahora la industria azucarera de la Isla podrá estudiar la reposición de trabajadores con maquinaria agrícola para aumentar la producción, cuyo estudio ya se está prosiguiendo con afán.

En conclusión, el Sr. del Valle dijo: "Espero que mis observaciones calmen sus temores y que los reaseguren en cuanto al progreso dinámico de nuestra gran industria. No vendan "corto" a Puerto Rico.

■

Nuevo Filtro Exhibido en Película

Durante el almuerzo mensual celebrado por la Asociación Zerban se exhibió una película del desarrollo por la Eimco Corporation de un tipo de filtro al vacío radicalmente nuevo y de su aplicación en la industria de azúcar de remolacha. El Sr. Robert Van Note de la Eimco describió en detalle los principios básicos del nuevo filtro. La película sonora y en colores muestra el filtro en operación en una fábrica de azúcar de remolacha. El medio filtrante corre sobre un filtro giratorio al vacío, se retira del tambor giratorio, pasa sobre un tambor auxiliar más pequeño—donde es lavado perfectamente en cada revolución—y se devuelve al tambor principal. Dicen que elimina la necesidad de frecuentes reposiciones del medio filtrante y que produce un jugo de primera carbonatación excepcionalmente claro. Ahora se están llevando a cabo ensayos en escala experimental en fábricas de azúcar de caña.

■

C. J. Welch

A principios del mes de diciembre de 1959, el Sr. C. J. Welch, funcionario azucarero retirado, falleción en su casa en Sands Point, Long Island (N.Y.). Durante los primeros años de su carrera fue uno de los organizadores de la Cape Cruz Company, corredores en azúcar crudo con un central azucarero en la provincia de Oriente, Cuba. El Sr. Welch ocupó el cargo de presidente de esta empresa durante 41 años y también tomó parte activa en una firma de corredores azucareros en Nueva York.

Las propiedades inherentes del bagazo, aunidas a su bajo costo, lo hacen el material más adecuado para la manufactura de cartón corrugado. Debido al largo y naturaleza de las fibras, el cartón corrugado hecho el 100% de pasta de bagazo posée gran rigidez y elasticidad.

Las torres Celdecor de digestión continua ofrecen el método más sencillo y más práctico de convertir el bagazo en un medio corrugable de alta calidad. Estas torres usan solamente soda cáustica y vapor a presión admosférica, y funcionan eficiente y económicamente con el mínimo de atención. La ilustración inserta ofrece un ejemplo típico de las torres Celdecor de digestión que se están usando con éxito en varios países.

Planta Celdecor Despulpadora en la fábrica de Sittingbourne de la Bowater Organization

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la realidad:

- ¡Estas declaraciones son falsas!
- Algunos competidores fabrican repuestos PARECIDOS a los repuestos legítimos Cat, pero en realidad esas piezas distan mucho de ser iguales en calidad. La DIFERENCIA en calidad les pone en condición de poder vender a precios iguales o más bajos que los de los Distribuidores Caterpillar, pero no hay que dejarse engañar por las apariencias.
- Todas las piezas que Caterpillar adquiere de otras compañías, son sometidas a rigurosas pruebas para verificar su alta calidad.
- SOLAMENTE los Distribuidores Caterpillar tienen repuestos que incorporan las mejoras más recientes de ingeniería y fabricación.

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Remolacha y Caña en Pakistán Occidental

Por H. Kampf

Doctor en Ciencias Técnicas, F.R.I.C.

Al terminar la recolección de la cosecha de caña en Pakistán Occidental en el mes de julio, la Charsadda Sugar Mills Ltd. hizo una prueba de diez días con nuevo equipo para la producción de azúcar de remolacha. En la edición de junio de 1959 de SUGAR y AZUCAR, páginas 30 y 50, el autor publicó un artículo sobre el establecimiento de una industria remolachera en Pakistán. Los resultados obtenidos con la molienda de remolacha en un tren de molinos convencional en escala experimental fueron tan favorables, que la empresa obtuvo las divisas extranjeras necesarias para comprar equipo convencional para beneficiar la remolacha.

La nueva planta es capaz de manejar 1,500 toneladas de remolacha diarias. Las cosetas de remolacha son pesadas y entregadas continuamente a un difusor continuo. El jugo de difusión es predefecado, clarificado, y tratado con lechada de cal y ácido carbónico en la fábrica de azúcar de caña construída en 1956. De aquí en adelante se usa el equipo de elaboración de azúcar de caña. El difusor y demás equipo fue suministrado e instalado por la firma de Buckau R. Wolf, A. G. de Alemania Occidental, cuya firma también instaló el equipo de molienda de caña.

El éxito de este experimento con remolacha fue significante para Pakistán, pues ahora el gobierno permitirá al Premier Sugar Mill en Mardan y al Frontier Sugar Mill en Takht-I-Bhai que importen maquinaria para la preparación y difusión de remolacha en combinación con la producción de azúcar de caña.

La última cosecha de caña en Pakistán fue una de las mejores en la historia de su industria azucarera. Al terminar la campaña el 15 de julio, se habían molido 2,340 toneladas cortas de caña, con un rendimiento de 187,000 toneladas cortas de azúcar blanco. Durante los diez días de prueba, la Charsadda Mills Ltd. benefició 5,000 toneladas cortas de remolacha. Otras 3,480 toneladas cortas fueron molidas en los molinos de caña de la Premier Sugar Mill y 4.95 toneladas en los molinos de caña de la Leigh Sugar Mill.

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La "magia" de la filtración con Celite pone en el azúcar un resplandor adicional

¿A qué se debe esa *mágica* actuación de CELITE como ayuda de filtro? CELITE* es un polvo hecho de millones de partículas de formas irregulares, intrincadas, que no son otra cosa sino las caparazones de plantas marinas monocelulares extintas desde hace millones de años (florecieron en el Mioceno). La ciencia ha descubierto que esta "tierra blanca" forma una superficie ideal de filtración, más fina que la de cualquier tela de filtro. Y son *milagros* los que hoy realizan en muchos procedimientos industriales estos polvos silicosos conocidos por CELITE.

Como ayuda de filtro, por ejemplo, CELITE se usa en la filtración de jarabes de caña de azúcar, cerveza, agua potable, productos farmacéuticos y muchos otros cuerpos y substancias que se emplean diariamente. Y ¡ningún otro medio de filtración puede compararse en eficacia con CELITE!

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Pida Ud. un útil folleto sobre CELITE a Johns-Manville International Corp., Box 14, New York, N.Y., EE.UU.

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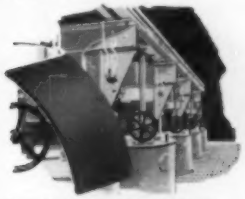

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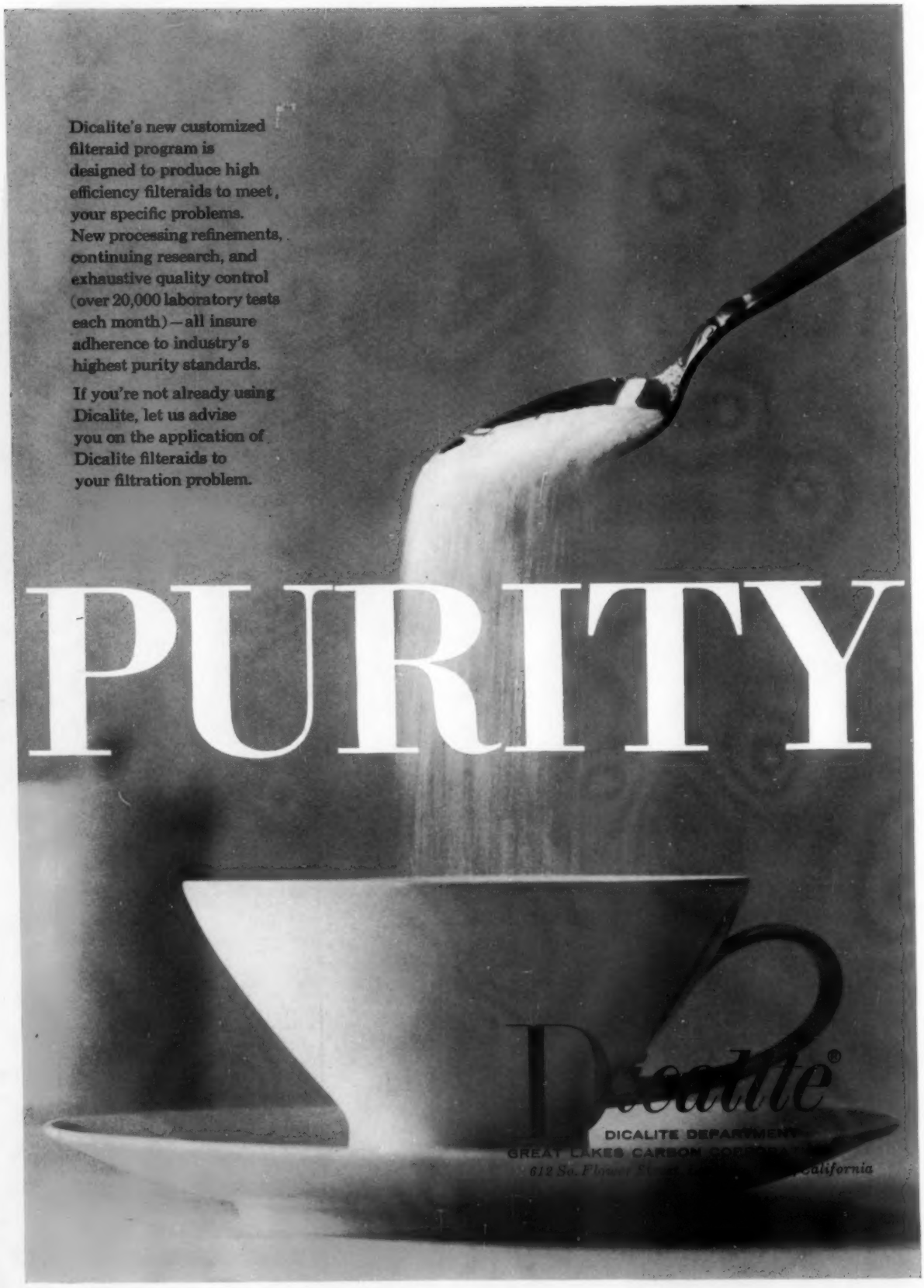
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